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APPLICANT: Seenan, Myriam;
APPLICANT: Seenan, Myriam;
APPLICANT: Valentin, Henry E.;
APPLICANT: Valentin, Henry E.;
APPLICANT: Venkatramesh, Tyamagondlu V.;
APPLICANT: Venkatramesh, Mylavarapu
TITLE OF INVENTION: Methyl-D-Erychritol Phosphate Pathway Genes
FILE REFERENCE: 16516.107/35-21(51897)US
CURRENT APPLICATION NUMBER: US/09/921,992
CURRENT FILING DATE: 2001-08-06
PRIOR PILING DATE: 2000-08-07
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                                     US-09-921-992-50 (1-372) x US-09-921-992-22 (1-670)
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Rodriguez-Concepcion, Manuel;
Rohmer, Michel;
Seeman, Myriam;
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Patent No. US20020069426A1
GENERAL INFORMATION:
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APPLICANT: Campos, Narciso
APPLICANT: Rodriguez-Conce
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SEQ ID NO 23
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ORGANISM: Zea mays
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189 TCGCCTCATGGTGAAACGTATGGACGAGTTGGGCATGGATTATCCCCTCCATCTAGGGGT
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Best Local Similarity: 55.28\$ Mismatches: 43 Query Match: 24.22\$ Indels: 0 DB: 14 Gaps:	09-921-992-50 (1-372) x US-10-066-543-1184 (1-706)	Qy 10 ArgLysSerThrArglleTyrValGlyAsnValProlleGlyAspGlyAlaProlleAla 29		Db 278 ATTCAATCGATGATTAACACGGGAAACTGCGGATGTAGAGCGAGTGTCAGGCAAATTTTG 337  Qy 50 AlaLeuGluArgValG1yAlaAspIleValArgValSerValProThrMetAspAlaAla 69	338 GATTIGGAAGAAGCGGCTGTGAATTGGTTCGTATGACGATCAATACAAAAGAGGCGGCT	Oy 70 GlualaPheLySLeuIleLySGlnGlnValAsnValProLeuValAlaAspIleHisPhe 89	Oy 89DTYFARGILeAlaLeuLysValAlaGluTyrGlyValAspCysLeuArgIleAsnPro 109	110 Glydsn1leGlydsnGluGluArglleArgMetValValAspCysAlaArgAspLysAsn	Db 518 GGAATATCGGTTCTGAAGAAATATTCGTTTGGTTGCGGAAGCGGCAAAAGGAGGA 577  Qy 130 ileProileArgileGlyValAsnAlaGlySerLeuGluLySaSpLeuGluLysTyr 149	578 ATTCCGATTCGTATTGGAGTCATGCAGGTTCTTTGGAAAACATATCTTGGAAAATAT	Qy 150 GlyGluProThrProGlnalaLeuLeuGluSeralaMetArgHisValAspHisLeuAsp 169	170 Arg 170	RESULT 14	US-09-921-992-22 ; Sequence 22, Application US/09921992 ; Patent No. US20020069426A1	; GENERAL INFORMATION: ; APPLICANT: BOROINE; ; ADDITORNT: Campog Marciec.	/ APPLICANT: Rodriguez-Conception, Manuel; / APPLICANT: Rodriguez-Conception, Manuel;	; APPLICANT: Seeman, Myriam; ; APPLICANT: Valentin, Henry E.; ; APPLICANT: Venkatesh, Tyamaqondlu V.;	; APPLICANT: Venkatramesh, Mylavarapu ; TITLE OF INVENTION: Methyl-DE-Erythritol Phosphate Pathway Genes ; FILE REPERBNCE: 16516.107/35-21/31897)US	; CURRENT APPLICATION NUMBER: US/09/921,992 ; CURRENT FILING DATE: 2001-08-06 ; DETOE ADELITARIAN MIMEDED: NG 60/293 A03	FAIGN FILING DATE: 2000-08-07  NUMBER OF SEQ ID NOS: 85		; ORGANISM: Zea mays US-09-921-992-22	Alignment Scores: 5.06e-32 Length: 670 Pred. No.: 339.00 Matches: 81 Score: 319.00 Matches: 81 Percent Similarity: 59.81% Conservative: 44 Best Local Similarity: 38.76% Mismatches: 60
Qy 104 CysLeuArgIleAsnProGlyAsnIleGlyAsnGluGluArgIleArgMetValValAsp 123   :::   :::	124 CyshlaArghelli.	Db 760 TATACAGAAGATGAATATCAGAAACTCCAGCATATCGAGCAGGTCTTCACTCTTG 819 Qy 129AsnlleProlleArq1leGlyValAsnAlaGlySerLeu 141		Qy 142 GluLysAspLeuGlnGluLysTyrGlyGluProThrProGlnAlaLeuLeuGluSerAla 161	162 MetArgHisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSerValLys	AAT e	Db 997 GCGAGCAACCCAGTGATCATGGTCCAGGCGTACCGTTTACTTGTGGCTGAGATGTATGT	1057 CATGGATGGGATTATCCTTTTGCATTTTCGGAGTTACTGAGGCAGGAGAAGGCGAAGAGGAA	Qy 217 AlaValLysSerAlaIleGlyLeuGlyLeuLeuSerGluGlyIleGlyAspThrLeu 236 :::	237 ArgValSerLeuAlaAlaAapProValGluGluIle	Db 1177 AGAGTTTCACTGACGGAGCCACCAGAAGAGGAGATA 1212 RESULT 13	US-10-066-543-1184 ; Sequence 1184, Application US/10066543 ; Publication No. US20030087818A1 ; GENERAL THERRARITON.	; GENERAL INFORMATION: ; APPLICANT: Jiang, Yuqiu ; APPLICANT: Pyle, Ruth A.	; APPLICANT: Xu, Jiangchun ; APPLICANT: Indirias, Carol Yoseph ; APPLICANT: Lodes, Michael J.	; APPLICANT: Secrist, Heather ; APPLICANT: Carrer, Darrick ; aDDITCANT: Farner Carr, D	; APPLICANT: Smith, Carole L. ; APPLICANT: Durham, Margarita	; APFLICANT: STOIK, JOHN AN. ; TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY ; TITLE OF INVENTION: AND DIAGNOSIS OF COLON CANCER	; FILE REFERENCE: 210121.563 ; CURRENT APPLICATION NUMBER: US/10/066,543 ; CURRENT FILING DATE: 2002-01-31	; NUMBER OF SEQ ID NOS: 3417 ; SOFTHARE: FastSEQ for Windows Version 4.0	TYPE IN THE TOP	; OKGANISM: HOMO BADIENS ; FEATURE: ; NAME/KEY: misc_feature	; LOCATION: 2, 645, 659 ; OTHER INFORMATION: n = A,T,C or G US-10-066-543-1184	Alignment Scores: 5.99e-46 Length: 706 Score: 452.00 Matches: 89 Percent Similarity: 73.29% Conservative: 29

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----ATCGAGGAGGCGATGCGGCTGGCCGCC 1101
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APPLICANT: Campos, Narciso;
APPLICANT: Rodriguez-Concepcion, Manuel;
APPLICANT: Rodriguez-Concepcion, Manuel;
APPLICANT: Rodriguez-Concepcion, Manuel;
APPLICANT: Seeman, Myriam;
APPLICANT: Valentin, Henry E.;
APPLICANT: Valentin, Henry E.;
APPLICANT: Venkatramesh, Mylavarapu
TITLE OF INVENTION: Methyl-D-Erychristol Phosphate Pathway Genes
TITLE REFERENCE: 16516.107/35-21(51897)US
CURRENT FILING DATE: 2001-08-06
CURRENT FILING DATE: 2001-08-06
PRIOR PILING DATE: 2000-08-07
NUMBER OF SEQ ID NOS: 85
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Patent No. US20020069426A1
GENERAL INFORMATION:
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LENGTH: 2520
TYPE: DNA
ORGANISM: Arabidopsis thaliana
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532 TTCGAGGAGCATGGCTTCGGTGACATCAGGTCAGCGTCAAGCACCACCAGCGGGGG 591
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                               1164
156
64
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                                                              Conservative:
Mismatches:
Indels:
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                               Length:
Matches:
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751.50
60.27%
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                                                           Percent Similarity:
Best Local Similarity:
Query Match:
DB:
               Alignment Scores:
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                                                                                                              2127871 GITACTGAAGCTGGTCCCAAGTTCATGGGAACAATCAAGTCTTCCGTAGCATTCGGCGCT
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                         2127931 crcargeregaegccracceccaecrescreacaacaacaacracceacrescrecer
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APPLICANT: Rotstein, Sergio H.
APPLICANT: Marcotte, Edward M.
TITLE OF INVENTION: DETERMINING THE FUNCTIONS AND
TITLE OF INVENTION: INTERACTIONS OF PROTEINS BY COMPARATIVE ANALYSIS
FILE REFERENCE: 07419-032001
CURRENT APPLICATION NUMBER: US/09/712,363
CURRENT FILING DATE: 2000-011-13
PRIOR APPLICATION NUMBER: PCT/US00/02246
PRIOR FILING DATE: 2000-01-28
PRIOR FILING DATE: 2000-02-01
PRIOR PLILNG DATE: 2000-02-01
PRIOR APPLICATION NUMBER: 60/117,844
PRIOR PLILNG DATE: 1999-01-29
PRIOR APPLICATION NUMBER: 60/117,844
PRIOR PLILNG DATE: 1999-02-01
PRIOR PLILNG DATE: 1999-03-26
PRIOR APPLICATION NUMBER: 60/134,093
PRIOR PLILNG DATE: 1999-05-14
PRIOR APPLICATION NUMBER: 60/134,092
PRIOR PLILNG DATE: 1999-05-14
PRIOR PLILNG DATE: 1999-05-14
PRIOR PLILNG DATE: 1999-11-12
PRIOR APPLICATION NUMBER: 60/165,124
PRIOR PLILNG DATE: 1999-11-12
PRIOR APPLICATION NUMBER: 60/165,124
PRIOR PLILNG DATE: 1999-11-12
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ORGANISM: Mycobacterium tuberculosis
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Patent No. US20020164588A1
GENERAL INFORMATION:
SOFTWARE: FastSEQ for Windows SEQ ID NO 110
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Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                               TILE REFERENCE: 249-125
CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
RRIOR APPLICATION NUMBER: US/09/73484
PRIOR APPLICATION NUMBER: UP 99/377484
PRIOR APPLICATION NUMBER: UP 00/159162
PRIOR FILING DATE: 2000-04-07
PRIOR FLILNG DATE: 2000-04-07
PRIOR FLILNG DATE: 2000-08-03
RRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
                                                                                                                                                                                                                 OF INVENTION: NOVEL POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA ORGANISM: Corynebacterium glutamicum
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                                                                            YOKOI, HARUHIKO
TATEISHI, NAOKO
SENOH, AKIHIRO
IKEDA, MASATO
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Best Local Similarity:
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                                                                                                                                                                                                                                                PheAspTyrArgIleAlaLeuLysValAlaGluTyrGlyValAspCysLeuArgIleAsn 108
                                                                                                                                                                                                                                                                                                                                                109 ProGlyAsnileGlyAsn---GluGluArgIleArgMetValValAspCysAlaArgAsp 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                128 LysaksnileProlleArgileGlyValAsnAlaGlySerLeuGluLysAspLeuGlnGlu 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                148 LysTyr---GlyGluProThrProGlnAlaLeuLeuGluSerAlaMetArgHisValAsp 166
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                                                                                                                                                                                LeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeuAlaAlaAspProValGlu
                                                  49 LysAlaLeuGluArgValGlyAlaAspIleValArgValSerValProThrMetAspAla
                                                                                                  133 GCACAGTIGACAGCCACCGGITGTGACATCGTCGCGGTIGCCTGCCAAAGACTGTTGAT
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APPLICANT: NAKGAWA, SATOSHI MIZOGUCHI, HIROSHI
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                                                                                                284 ValAsnAlaLeuGluGlnArgLeuGluAspIleIleThrProMetAspValSerIleIle 303
264 GlyileAsnPhelleAlaCysProThrCysSerArgGlnGluPheAspValileGlyThr 283
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                              943 GGCTGCGTCGTCAACGGGCCGGGGGCCGCGGGGGCCCGACCTCGGCGTCGCCTCCGGC
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Matches:
Conservative:
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APPLICANT: OCHIAI, KEIKO
APPLICANT: OCKIAI, MIKIRO
APPLICANT: TATELSHI, NAOKO
APPLICANT: TATELSHI, NAOKO
APPLICANT: SENOH, AKIHIRO
APPLICANT: KEDA, MASATO
APPLICANT: OZAKI, AKIO
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-125
CURRENT PAPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
PRIOR APPLICATION NUMBER: UP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 90/159162
PRIOR FILING DATE: 2000-04-07
PRIOR PLING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: PARCHIN VOR 13.0
SSOFTWARE: PARCHIN VET: 3.0
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ANDO, SEIKO
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                                      TyrGlyGluProThrProGlnAlaLeuLeuGluSerAlaMetArgHisValAspHisLeu
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APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATYORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-282
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
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PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
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                                                                                                                                               TYPE: DNA ORGANISM: Streptomyces avermitilis FEATURE:
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PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 1636
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APPLICANT: Al-Garawi, Amal Applicant Miler Charles
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APPLICANT: Miler Charles
APPLICANT: Tomb, Jean-Francois
APPLICANT: Tomb, Jean-Francois
APPLICANT: Oomen, Raymond P.
TITLE OF INVENTION: Encoding No. US20020115078Alel Helicobacter Polypeptides in the FILE OF INVENTION: Genome
FILE REPERENCE: 06132/041002
CURRENT APPLICATION WHBER: US/09/881,752A
CURRENT FILING DATE: 2001-06-15
PRIOR APPLICATION NUMBER: US 08/833,457
PRIOR APPLICATION NUMBER: US 08/833,457
NUMBER OF SEQ ID NOS: 370
SOFTWARE: FastSEQ for Windows Version 4.0
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   307 ValAsnGlyProGlyGluAlaLeuValSerThrLeuGlyValThrGlyGlyAsnLysLys
                                                                           327 SerGlyLeuTyrGluAspGlyValArgLysAspArgLeuAspAsnAsnAspMetIleAsp
                                                                                                                                                  347 GlnLeuGluAlaArgIleArgAlaLysAlaSerGlnLeuAspGluAlaArgArgIleAsp
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ORGANISM: Helicobacter pylori
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APPLICANT: Kleanthous, Harold
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US-09-881-752A-195
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                                                                                              crcrrcaagaagcacacrrrcagacarcaagarcrcggrcaagacaacgaccagrg
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APPLICANT: IKEDA, HARUO
APPLICANT: IKEDA, HARUO
APPLICANT: IKEDA, HARUO
APPLICANT: SHIRAWA, HIROSHI
APPLICANT: SHIRA, TADAXOSHI
APPLICANT: SHIRA, TADAXOSHI
APPLICANT: SHIRA, TADAXOSHI
APPLICANT: HATTORI, MASAHIRA
ITILE OF INVENTION: NOVEL FOLYNUCLEOTIDES
FILE REFERENCE: 249-226
CURRENT FILING DATE: 2002-05-29
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR PILING DATE: 2001-05-30
PRIOR PLING DATE: 2001-06-05
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO: LENGTH: 9025608
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Matches:
Conservative:
Mismatches:
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APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-06-07
                                                                                                                      Sequence 2548, Application US/10156761
Publication No. US20030119018A1
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APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
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SEQ ID NO 2548
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US-10-156-761-2548
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                                                     SerAlaMetArgHisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSer
                                                                 SerLeuGluLysAspLeuGlnGluLysTyrGlyGluProThrProGlnAlaLeuLeuGlu
                            VallysAlaSerAspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLysGlnIle
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Fatent No. US20020146721A1
GENERAL INFORMATION:
APPLICANT: Berka, Randy M.
APPLICANT: Clausen, Ib Groth
ITILE OF INVENTION: Expression
FILE REFERENCE: 10085.500-US
CURRENT APPLICATION NUMBER: US/09/974,300
CURRENT APPLICATION NUMBER: 09/680,598
FRIOR FILING DATE: 2001-10-05
PRIOR PELING DATE: 2001-10-05
PRIOR PELING DATE: 2001-03-27
NUMBER OF SEQ ID NOS: 8481
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 1692
LENGTH 1083
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; ORGANISM: Bacillus licheniformis
US-09-974-300-1692
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564 ATTGAGGCATATGAAAAAGCTTAAAAGCTTTCGATTAATCCGCTTCATTTAGGCATCACC
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   Length:
Matches:
Conservative:
Mismatches:
Indels:
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2.21e-91
822.00
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391872 GGTTGTGTAGTGATGGTCCTGGCGAGGCACTCGTCTCCGATCTCGGCGTAACGGGCGT 391931
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                             324 AsnlyslysSerGlyLeuTyrGluAspGlyValArg---LysAspArgLeuAspAsnAsn 342
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                                                           391932 AACAAAAAAAAGGGGTTATTATCTTGACGGAGAACGCCCAAAAAGAGGGGTTTTGATAACGAA
                                                                                      343 AspMetIleAspGlnLeuGluAlaArglleArgAlaLysAlaSerGlnLeuAspGluAla
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APPLICANT: WATANABE, HIDEMI
APPLICANT: WATANABE, HIDEMI
APPLICANT: WATANABE, HIDEMI
APPLICANT: HATTORI, MASAHIRA
APPLICANT: SAKAKI, YOSHIYUKI
TITLE OF INVENTION: GENOME DNA OF BACTERIAL SYMBIONT OF APHIDS
FILE REPERENCE: 081356/0159
CURRENT APPLICATION NUMBER: US/09/790,988
CURRENT FILING DATE: 2001-02-23
PRIOR PELING DATE: 2000-04-07
NUMBER OF SEQ ID NOS: 7
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ORGANISM: Buchnera
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LOCATION: (117136)..(117136)

NAME/KEY: misc\_feature
LOCATION: (105121). (105121)
OTHER INFORMATION: n equals a, t, g or c
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LOCATION: (107248). (107248)
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FEATURE: or c NAME/KEY: misc feature LOCATION: (80024)..(80024) OTHER INFORMATION: n equals a, t, g or c t, g or c NAME/KEY: misc feature LOCATION: (44416)..(44416) OTHER INFORMATION: n equals a, t, g or NAME/KEY: misc feature LOCATION: (45732)..(45732) OTHER INFORMATION: n equals a, t, g or NAME/KEY: misc\_feature LOCATION: (51334)..(51334) OTHER INFORMATION: n equals a, t, g or FEATURE:
NAME/KEY: misc\_feature
LOCATION: (51602). (51602)
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LOCATION: (44975) . (44975)
OTHER INFORMATION: n equals a, t, g NAME/KEY: misc feature LOCATION: (47036)..(47036) OTHER INFORMATION: n equals a, t, g NAME/KEY: misc feature LOCATION: (51805)..(51805) OTHER INFORMATION: n equals a, t, g t, g t, g NAME/KEY: MANE/KEY: misc feature LOCATION: (100091)..(100091) OTHER INFORMATION: n equals a, t, g t, g NAME/KEY: misc\_feature LOCATION: (44905)..(44905) OTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (51786)..(51786) OTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (55369)..(55369) OTHER INFORMATION: n equals a, FEATURE:
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LOCATION: (65309).
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LOCATION: (11974)..(119924)
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OTHER\_INPORMATION: (131340)
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NAME/KEY: misc\_feature
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Sequence 1, Application US/10329960;
Publication No. US2003009927741
GENERAL INFORMATION:
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                    | SerIleIleGlyCysValValAsnGlyProGlyGluAlaLeuValSerThrLeuGlyVal 320
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NAME/KEY: misc feature
LOCATION: (9921)
OTHER INFORMATION: n equals a, t,
FEATURE:
NAME/KEY: misc feature
LOCATION: (10150)
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LOCATION: (29298)
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NAME/KEY: misc feature
LOCATION: (4747)..(4747)
OTHER INFORMATION: n equals
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LOCATION: (36543)..(36543)
OTHER INFORMATION: n equals
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LOCATION: (40808)..(40810)
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LOCATION: (36551)..(36551)
OTHER INFORMATION: n equals
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OTHER INFORMATION: n equals
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LOCATION: (36636)..(36
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 CCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCATACGCGTACGACAGAC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541 AAAGCGTCTGACGTCTTCCTCGCTGTTGAGTCTTATCGTTTGCTGGCAAAACAGATCGAT 600
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Pred. No.:
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Sequence 195, App
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Sequence 6102,
Sequence 42, App
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; Sequence 3, Application US/09921992
; Patent No. US2002006942641
; GENERAL INFORMATION:
; APPLICANT: Campos, Natciso;
; APPLICANT: Rohmer, Michel;
; APPLICANT: Rohmer, Michel;
; APPLICANT: Venteres, Tyamagondlu V.;
APPLICANT: Venteres, Tyamagondlu V.;
APPLICANT: Venteres, Tyamagondlu V.;
APPLICANT: Venteres, Tyamagondlu V.;
APPLICANT: Venterin, Henry E.;
; APPLICANT: Venteramesh, Tyamagondlu V.;
APPLICANT: Venterin, Henry E.;
; APPLICANT: Venterins, Nylavarapu
TITLE OF INVENTION: Methyl-D-Erythritol Phosphate Pathway Genes
; FILE REPREMENCE: 16516.107/35-21(51897)US
; CURRENT APPLICATION NUMBER: US 60/223,483
; PRIOR APPLICATION NUMBER: US 60/223,483
; PRIOR PLING DATE: 2000-08-07
; NUMBER OF SEQ ID NOS: 85
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10 US-09-790-988-1
10 US-09-974-300-1692
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1 US-10-156-761-195
10 US-09-881-72A-195
14 US-10-156-761-195
10 US-09-738-626-2205
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US-00-921-992-21
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ORGANISM: Escherichia coli
FEATURE:
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1: /cgn2_6/ptodata/1/pubpna/USO7_PUBCOMB.seq:*
2: /cgn2_6/ptodata/1/pubpna/PCT_NEW PUB.seq:*
3: /cgn2_6/ptodata/1/pubpna/USO6_NEW PUB.seq:*
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8: /cgn2_6/ptodata/1/pubpna/USO8_NEW PUB.seq:*
9: /cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*
10: /cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*
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                                   GenCore version 5.1.6
(c) 1993 - 2003 Compugen Ltd.
                                                                                                                 nucleic search, using frame_plus_p2n model
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Listing first 45 summaries
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Delop 6.0,
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Search completed: November 23, 2003, 19:44:10 Job time: 952 secs
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LeuLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeuAlaAlaAspProVal
             694 GGGTTATTGATGAAGGCATTGGCGATACGATGCGTATTTCGCTTGCTGCTGAACCTGAA
                                              GluGluileLysValGlyPheAspileLeuLysSerLeuArgileArgSerArgGlyile
                                                             GATGAAATCGATTTTGATATCTTAAAATCGCTTGGCCTACGTTCTAAACGTATC
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TITLE OF INVENTION: Methods For Screening For Antimicrobials TITLE OF INVENTION: Utilizing aarC And Compositions Thereof CORRESPONDENCE ADDRESS: ADDRESS: ADDRESS: ADDRESSE: Medlen & Carroll, LLP STRET: 220 Montgomery Street, Suite 2200 CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPOTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPENATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Ve
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/827,190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY: United States of America
                                                                                                                                                                                                                                                                                                                                                                                    RESULT 15
US-08-827-190-9/c
; Sedence 9, Application US/08827190
; Patent No. 5858367
; GENERAL INFORMATION:
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NAME: Carroll, Peter G.
REGISTRATION NUMBER: 32,837
REBERENCE/DOCKET NUMBER: CASE-
TELECOMMUNICATION INFORMATION:
TELEPRAN: (415) 397-8338
INFORMATION FOR SEQ ID.NO: 9:
SEQUENCE CHARACTERISTICS:
LENGTH: 886 base pairs
TYPE: nucleic acid
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: unknown

MOLECULE TYPE: DNA (genomic)
US-08-827-190-9
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Length:
Matches:
Conservative:
Mismatches:
Indels:
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2.68e-84
812.00
70.65%
53.92%
43.52%
                                Percent Similarity:
Best Local Similarity:
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RESULT 14
US-09-128-352-3780
| Sequence 3780, Application US/09328352
| Patent No. 6562958
| GENERAL INFORMATION:
| APPLICANT: Gary L. Breton et al.
| TITLE OF INVENTION: BAUMANNII FOR DIAGNOSTICS AND THERAPEUTICS
| TITLE OF INVENTION: BAUMANNII FOR DIAGNOSTICS AND THERAPEUTICS
| CURRENT APPLICATION NUMBER: US/09/328,352
| CURRENT PILING DATE: 1999-06-04
| NUMBER OF SEQ ID NOS: 8252
| SEQ ID NO 3780
| LENGTH: 1137
                                                                                                                                                                                                                                                                                                                                                                                                                     153
                                                                                                                                                                                                                                                                                                                                                                                                           94 GCACCTATTAGTGTGCAAAGTATGACAAATACCGAAACTTGCGATGTTGACGCAACTGTG
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Conservative:
Mismatches:
Indels:
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                                                                                                                                                                             ; TYPE: DNA
; ORGANISM: Acinetobacter baumannii
US-09-328-352-3780
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Best Local Similarity:
Query Match:
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Matches:
Conservative:
Mismatches:
Indels:
Gaps:
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                                                         1.11e-146
1353.00
96.26%
91.16%
72.51%
           DNA (genomic)
TOPOLOGY: linear
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sal Similarity:
           MOLECULE TYPE:
 ; TOPOLOGY:
; MOLECULE TYF
US-09-170-187-10
                                               Alignment Scores:
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COMPUTER READABLE FORM:
MEDION TYPE: Floppy disk
CONFUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/170,187
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/827,190
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Carroll, Peter G.
REGISTRATION NUMBER: 32,837
REFERENCE/DOCKET NUMBER: CASE-024
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-170-187-10/c
; Sequence 10, Application US/09170187
; Patent No. 6383745
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INFORMATION FOR SEQ ID NO: 1
SEQUENCE CHARACTERISTICS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE
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APPLICANT: Rather, Philip N.

TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES:
ADDRESSEE: Medien & Carroll, LLP
STREET: 220 Montegomery Street, Suite 2200
CITY: San Francisco
STATE: California
COMURRY: United States of America
ZIP: 94104
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/827,190 FILING DATE:
CLASSIPICATION: 435
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Mismatches:
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Matches:
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NAME: Carroll, Peter G.
REGISTRATION UNDER: 32,837
REFERENCE/DOCKET NUMBER: CASE-02443
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 705-8410
TELEFHONE: (415) 397-8338
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:
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TYPE: nucleic acid
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ValGluSerTyrArgLeuLeuAlaLysGlnIleAspGlnProLeuHisLeuGlyIleThr
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TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: Medlen & Carroll, LLP
STREET: 220 Montgomery Street, Suite 2200
CITY: San Francisco
STATE: California
COUNTRY: United States of America
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TYPE: nucleic acid
STRANDEDNESS: double
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|GrottcargGccGrogcctaTcGccTGCTGGCCAGGCAGATCGAGCAGCCCTGCAC
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Patent No. 6551795
GENERAL INFORMATION:
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
TITLE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR PRILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 6339
LENGTH: 2088
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               GlnProLeuHisLeuGlyIleThrGluAlaGlyGlyAlaArgSerGlyAlaValLysSer
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Percent Similarity:
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US-09-252-991A-6339
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Pred. No.:
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                                                                                                                      APPLICANT: Marc 1. Rubenfield et al.

APPLICANT: Marc 1. Rubenfield et al.

TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING 7

TITLE OF INVENTION: AERGINOSA FOR DIAGNOSTICS AND THERAPEUTICS

FILE REFERENCE: 107196.18

FILE REFERENCE: 107196.18

PRIOR APPLICATION NUMBER: US 60/074,788

PRIOR APPLICATION NUMBER: US 60/074,788

PRIOR FILING DATE: 1998-02-18

PRIOR APPLICATION NUMBER: US 60/094,190

PRIOR FILING DATE: 1998-07-27

NUMBER OF SEQ ID NOS: 33142

SEQ ID NO 6131

LENGTH:: 2202
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Matches:
Conservative:
Mismatches:
Indels:
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Sequence 6131, Application US/09252991A

Patent No. 6551795

GENERAL INFORMATION:
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Sequence 6420, Application US/09252931A
; Sequence 6420, Application US/09252931A
; Sequence 6420, Application US/09252931A
; Patent No. 6551795
; GENERAL INFORMATION:
    TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
; TITLE OF INVENTION: ARRUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
; TITLE OF INVENTION: ARRUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
; FILE REFERENCE: 107196.136
; CURRENT FILING DATE: 1999-02-18
; PRIOR FILING DATE: 1999-02-18
; PRIOR FILING DATE: 1998-02-18
; PRIOR FILING DATE: 1998-07-27
; NUMBER OF SEQ ID NOS: 33142
; SEQ ID NO 6420
LENGTH: 1644
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                                                                                                                                                                                                                                                                                                                                           606 ATTACAGAAGCAGGCGCACGCGCTGGTGCAGTAAAATCTGCAGTGGGTTTAGGAATG
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                                                                                       207 IleThrGluAlaGlyGlyAlaArgSerGlyAlaValLySSerAlaIleGlyLeuGlyLeu
                   LeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeuAlaAlaAspProValGlu
                                                                  LeuAlaValGluSerTyrArgleuLeuAlaLysGlnIleAspGlnProLeuHisLeuGly
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Mismatches:
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                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/170,187
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Mismatches:
Indels:
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Matches:
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/827,190
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: CATFOLL, PEFET G.
REGISTRATION NUMBER: 32,837
REGISTRATION NUMBER: CASE-02
TELEPHONE: (415) 705-8810
TELEPHONE: (415) 397-8338
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 1079 base pairs
                       of America
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94.93%
89.30%
85.40%
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       California
: United States
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STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: unknown
                                                                                                                                                                           FILING DATE:
CLASSIFICATION:
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Best Local Similarity:
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                                   ZIP: 94104
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                                                                     87 IleHisPheAspTyrArgIleAlaLeuLysValAlaGluTyrGlyValAspCysLeuArg
                                                                                           246 ATTCATTTCGACTATCGTATCGCGTTAAAAGTCGCAGAATATGGAGTGGATTGTTTACGT
                                                                                                                                          107 IleAsnProGlyAsnIleGlyAsnGluGluArgIleArgMetValValAspCysAlaArg
                                                                                                                                                              306 ATCAATCCTGGCAACATTGGTCGTGAAGATCGCGTCCGTGCCGTTGTTGATTGTGCGCGA
                                                                                                                                                                                                              127 AspLysAsnIleProIleArgIleGlyValAsnAlaGlySerLeuGluLysAspLeuGln
                                                                                                                                                                                                                                    426 GAAAATTGGGGAACCAACGCCAGAAGCCTTGTTAGAATCCGCATTGCGTCATGTAGAA
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 67 AspAlaAlaGluAlaPheLysLeuIleLysGlnGlnValAsnValProLeuValAlaAsp
                                  186 GATGCTGCGGAAGCATTTAAACAAATTAAACAACAAGTGAATGTTCCGCTCGTAGCAGAT
                                                                                                                                                                                                                                                                                                                                                                             486 ATTCTAGATGGTCTTAAACTTCGATCAGTTTAAAGTGAGGGTAAAAGCCTCCGGATGTATTC
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APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: Medlen & Carroll, LLP
STREET: 220 Montgomery Street, Suite 2200
CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      346 AspGlnLeuGluAlaArgIleArgAlaLysAlaSerGlnLeuAsp 360
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Patent No. 6383745
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US-09-170-187-7
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                                AspMetIleAspGlnLeuGluAlaArgIleArgAlaLysAlaSerGlnLeuAspGluAla
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                                                                                                                                                                                                        Sequence 7, Application US/08827190;
Patent No. 5858367;
GENERAL INFORMATION:
APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES: 13
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STREET: 220 Montgomery Street, Suite 2200
CITY: San Francisco
STATE: California
COUNTRY: United States of America
ZIP: 94104
COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN PRICATION DATA:
APPLICATION NUMBER: US/08/827,190
APPLICATION NUMBER: US/08/827,190
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Matches:
Conservative:
Mismatches:
Indels:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
CLASSIFICATION: 435
ATTORNAY AGENT INFORMATION:
NAME: CARTO11, Peter G.
REGISTRATION NUMBER: 32, 837
REFERENCE/DOCKET NUMBER: CASE-02443
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 705-8410
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94.93%
89.30%
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INFORMATION FOR SEQ ID NO: 7
SEQUENCE CHARACTERISTICS: LENGTH: 1079 base pairs
                                                                                                                                       392052 AACAGAATT 392060
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EDNESS: double
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ADDRESSEE: Medlen &
                                                                                                      363 ArgArgile 365
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US-08-827-190-7
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GTAAATGCGCTAGAACAACGCCTTGAAGATATTATTACACCAATGGATGTATTATTACACCAATGGATGTATTATTACACCAATGGATGTATTATTACACCAATGGATGTATTATTACACCAATGGATGTATTATTACACCAATGGATGTATTATTACACCAATGGATGTATTATTACACCAATGATGATGATATTATTACACCAATGATATATAT	Percent Similarity: 93.66% Conservative: 20 Best Local Similarity: 88.15% Mismatches: 22 Query Match: 1 A Cane. 1	
391872 GGTTGTGTAGTGAATGGTCCTGGCGAGCACTCGTCTCCGATCTCGGCGGGTAACGGGCGGT	921-992-50 (1-372) x US-09-643-990A-1 (1-1830121	
Oy 324 AsnlyslysSerGlyLeuTyrGluAspGlyValArgLysAspArgLeuAspAsnAsn 342	Oy 4 GlnAlaProlleGlnArgArgLysSerThrArglleTyrValGlyAsnValProlleGly 23	031
Qy 343 AspMetIleAspGlnLeuGluAlaArgIleArgAlaLy6AlaSerGlnLeuAspGluAla 362	Qy 24 AspGlyAlaProlleAlaValGlnSerWetThrAsnThrAsgThrThrAspValGluAla 43	91
Qy       363 Argargile 365         Db       392052 AACAGAATT 392060	Oy 44 ThrvalAsnGlnIleLysAlaLeuGluArgValGlyAlaAspIleValArgValSerVal 63	51
RESULT 6 US-09-643-990A-1 : Sequence 1, Application US/09643990A	Oy         64 ProThrMetAspalaAlaGluAlaPhetysLeuIleLysGlnGlnValAsnValProLeu 83           Db         391152 CCAACAATGGATGCTGCGGAAGCATTTAAACAAATTAAACAACAAGTGAATGTTCCGCTC 3912	11
Patent No. 6528289 GENERAL INFORMATION: APPLICANT: ACOBERT D. Fleischmann Mark D. Adams	Oy 84 ValalaAspileHisPheAspTyrArgileAlaLeuLysValAlaGluTyrGlyValAsp 103	71
Owen White Hamilton O. Smith J. Craig Venter Trutt Or taxrominal who main oction of	Oy 104 CysLeuArglleAsnProGlyAsnIleGlyAsnGluGluArglleArgMetValValAsp 123	33
` .	124 CysAlaArgAspLysAsnileProlleArgileGlyValAsnAlaGlySerLeuGluLys 1	
CORRESPONDENCE ADDRESS: 1	CCGATTCGTATTGGTGTAAATC	91
STREET: 9410 Key West Avenue CITY: Rockville, STATE: MD	Oy 144 AspleuGlnGluLysTyrGlyGluBroThrProGlnAlaLeuLeuGluSerAlaMetArg 163  Db 391392 GATTTGCAAGAAAATATGGCGAACCCAGAAGCCTTGTTAGAATCGCATTGCGT 391	51
$\sim -$	HisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSerValLysAlaSer	
MEDIUM TYPE: 3 1/2 inch diskette COMPUTER: Dell Pentium	391452 CATGTAGAAATTCTAGATCGTCTTAACTTCGATCAGTTTAAAGTGAGCGTAAAAGCCT	11
CURRENT APPLICATION DATA:		17
APPLICATION NUMBER: US/09/643,990A FILING DATE: 23-Aug-2000 CLASSIFICATION: <unknown></unknown>	204 HisLeuGlyIleThrGluAlaGlyGlyAlaArgSerGlyAlaValLysSerAlaIleGly 2	;
PRIOR APPLICATION DATA: APPLICATION NUMBER: 08/487,429	391572	3.1
FILLING DATE: 1995-00-0/ STILING DATE: 1995-04-21	Selbemarariansp 	91
ATTORNEY AGENT INFORMATION: NAME: Kenley K. Hoover REGISTRATION NUMBER: 40,302	244 ProvalGluGluIleLysValGlyPheAspIleLeuLysSerLeuArglleArgSerArg 2	
TELECOMUNICATION INFORMATION: TELECOMUNICATION INFORMATION:	DD 391892 CCIGIAGAGGAAAICAAAGICGGIIIIGAIAIIIIGAAAICIIIACGAIIIGAICAAA 391 Qy 264 GlylleAsnPhelleAlaCysProThrCysSerArgGlnGluPheAspVallleGlyThr 283	10
TELEFAX: 310-309-8439 INFORMATION FOR SEQ ID NO: 1:		11
SEQUENCE CHARACTERISTICS:  EBUGTH: 1830121 base pairs  TYPE: nucleic acid  STRANDEDNESS: double	Qy 284 ValAsnAlaLeuGluGlnArgLeuGluAspilelleThrProMetAspValSerileile 303	71
TOPOLOGY: linear; SEQUENCE DESCRIPTION: SEQ ID NO: 1: US-09-643-990A-1	Oy 304 GlyCysValValAsnGlyProGlyGluAlaLeuValSerThrLeuGlyValThrGlyGly 323	31
Alignment Scores: 1.38e-170 Length: 1830121 Pred. No.: 1603.50 Matches: 320	32	

391091

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391151

391211

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391752 GGAATTAACTTTATTGCCTTGCCCAACCTGTTCTCGCCAAGAATTTGATGTAATCGGTACA 391811
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                                                                                                                                                                                                                                                                                                                      ValAlaAspIleHisPheAspTyrArgIleAlaLeuLysValAlaGluTyrGlyValAsp
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                                                                                                     1830121
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                                                                                                                                     Conservative:
Mismatches:
Indels:
Gaps:
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Matches:
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 TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
SEQUENCE DESCRIPTION: SEQ
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93.66%
88.15%
85.93%
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Query Match:
                                                                                                                                       Percent Similarity:
                                                                                         Alignment Scores:
Pred. No.:
                                                           US-09-557-884-1
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                                                                                          260
                                                                                                                                                     280
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                                 240
                                                                                                        RESULT 5
US-09-557-884-1
; Sequence 1, Application US/09557884
; Patent No. 6506581
; GENERAL INFORMATION:
; APPLICANT: Fleischmann et al.
; TITLE OF INVENTION: the Haemophilus influenzae Rd Genome, Fragments
Thereof, and Uses Thereof
                                                                                       AlaAlaAspProValGluGluIleLysValGlyPheAspIleLeuLysSerLeuArgIle
                                                                                                                                                  ArgSerArgGlyIleAsnPheIleAlaCysProThrCysSerArgGlnGluPheAspVal
                                                                                                                                                                                                           IleGlyThrValAsnAlaLeuGluGlnArgLeuGluAspIleIleThrProMetAspVal
                                                                                                                                                                                                                               321 ThrGlyGlyAsnLysLysSerGlyLeuTyrGluAspGlyValArg---LysAspArgLeu
CAACCACTTCACCTCGGTATTACAGAAGCGGGTGGGGCTCGTTCTGGTTCAGTGAAATCA
                             AlaIleGlyLeuGlyLeuLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeu
                                                          GCAATTGGTCTTGGTTGTTGGCTGAAGGTATCGGCGATACGTTACGTATCTCACTC
                                                                                                                                                                             955 CGCTCACGTCGCATCAACTTTATTGCCTTGCCCAACCTGTTCACGCCAAGAATTTGATGTC
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CORRESPONDENCE ADDRESS:
ADDRESSEE: Human Genome Sciences, Inc.
STREET: 9410 Key West Avenue
CITY: Rockville
STATE: MD
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COMPUTER: Dell Pentium
OPERATING SYSTEM: MS DOS v6.22
SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION UNMER: US/09/557,884
FILING DATE: 25-Apr-2000
CLASSIFICATION: <Unknown>
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APPLICATION NUMBER: 08/476,102
FILING DATE: JUN-5-1995
ATTORILING DATE: JUN-5-1995
ATTORILING DATE: JUN-5-1995
ATTORILING DATE: JUN-5-1991
REGISTRATION NUMBER: 41,971
REPRENCE/DOCKET NUMBER: 91,971
TELECOMMUNICATION INFORMATION:
TELEPHONE: 301-309-8504
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INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
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ZIP: 20850
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LOCATION: 175..1272
OTHER INFORMATION: /gene= "aarC"
OTHER INFORMATION: /note= "Similar to E. coli GcpE protein listed by GenBank."
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Matches:
Conservative:
Mismatches:
Indels:
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                                  REFERENCE DOCKET NUMBER: CASE-02443
TELEPHONE: (415) 705-8410
TELEPAX: (415) 397-8338
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 1345 base pairs
NAME: Carroll, Peter G. REGISTRATION NUMBER: 32,837
                                                                                                                                                                                                                                                                                                                                                                                                                                    1.02e-177
1624.50
94.09%
87.37%
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                                                                                                                                                                                     nucleic acid
EDNESS: double
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Query Match:
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Pred. No.:
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                         655 GCAATGCGACATGTTGATATCTTGGACAGGCTGAATTTCGATCAGTTCAGTGTAGTTGT
                                                                                                         321 ThrGlyGlyAsnLysLysSerGlyLeuTyrGluAspGlyValArg---LysAspArgLeu
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                                                                                    LysAlaSerAspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLysGlnIleAsp
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  AlaMetArgHisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSerVal
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Patent No. 6383745
GENERAL INFORMATION:
APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: 220 Montgomery Street, Suite 2200
CITY: San Francisco
CITYS: San Francisco
STATE: California
COUNTRY: United States of America
ZIP: 94104
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
FILING DATE:
FILING DATE:
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360 AspGluAlaArgArgIleAspValGlnGlnValGlu 371
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APPLICATION NUMBER: 08/827,190
FILING DATE:
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protein listed by GenBank.
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MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: PatentIn Release #1.0, Version #1.30
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/827,190
FILING DATE:
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Carroll, Peter G.
REGISTRATION NUMBER: 32,837
REGISTRATION INFORMATION:
TELEPHONE: (415) 397-8338
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 1345 base pairs
"VUPE: NUCLEE CARROLLES AND CAR
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Conservative:
Mismatches:
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LOCATION: 175..1272

COTHER INFORMATION: /gene= "aarC"

US-08-827-190-4
         of America
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1624.50
94.09%
: 87.37%
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         United States
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nucleic acid
EDNESS: double
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Best Local Similarity:
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Pred. No.:
         COUNTRY:
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                                                                          ValSerValProThrMetAspAlaAlaGluAlaPheLysLeuIleLysGlnGlnValAsn
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Patent No. 5888367
CENERAL INFORMATION:
APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES:
ADDRESSEE: Medlen & Carroll, LLP
STREET: 220 Montgomery Street, Suite 2200
CITY: San Francisco
STATE: California
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                               301 SerileileGlyCysValValAsnGlyProGlyGluAlaLeuValSerThrLeuGlyVal
                                                                                             Sequence 8, Application US/09170187; Patent No. 6383745; Patent No. 6383745; GENERAL INFORMATION:
GENERAL INFORMATION:
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS:
ADDRESSEE: Medlen & Carroll, LLP
STREET: 220 Montgomery Street, Suite 2200
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COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Floppy disk
COMPUTER: Floppy disk
COMPUTER: Floppy Size
COMPUTER: Floppy Size
COMPUTER: Floppy Size
COMPUTER: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/170,187
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Mismatches:
Indels:
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Matches:
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ATORNEY AGENT INFORMATION:
NAME: CATCOIL), PELER G.
REGISTRATION NUMBER: 32,837
REFERENCE/DOCKET NUMBER: CASE-
TELECOWMUNICATION INFORMATION:
TELEFAX: (415) 397-8338
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHRACTERISTICS:
LENGTH: 1010 base pairs
TYPE: nucleic acid
TYPE: nucleic acid
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CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/827,190
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California
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STATE: Ca
COUNTRY:
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US-09-170-187-8
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Matches:
Conservative:
Mismatches:
Indels:
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                                                                                     1.43e-185
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100.00%
                TOPOLOGY: unknown
MOLECULE TYPE: DNA (genomic)
                                                                                                                               Percent Similarity:
Best Local Similarity:
   STRANDEDNESS:
                                                                                  Alignment Scores
                                                  US-08-827-190-8
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Sequence 3780, Ap Sequence 9, Appli Sequence 9, Appli Sequence 621, Ap Sequence 2, Appli Sequence 1, Appli

Sequence 10, App]

Sequence 6209, Ap

Sequence 1, Applisequence 13, App Sequence 1254, App Sequence 1254, App Sequence 1426, Applisequence 1426, Applisequence 13, Applisequence 1, Applisequence 1,

Sequence 8258, Sequence

Sequence:

Run on:

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GENERAL INFORMATION:
APPLICANT: Rather,
TILLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: Medlen & Carroll, LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: San Francisco STATE: California COUNTRY: United States of America CONTRY: United States of America CONTRY: United States of America COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER: Floppy disk COMPUTER: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION DATA: APPLICATION NUMBER: US/08/827,190 FILING DATE: CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                      US-09-295-028-39
US-09-106-583-39
US-09-136-421-11
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US-09-136-421-11
US-08-445-333-1
US-08-445-333-1
US-09-252-91A-13125
US-09-512-946-1
US-09-612-964-1
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US-09-266-046-5
US-09-252-991A-14350
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US-09-252-991A-14267
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US-08-91A-784
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US-08-827-190-9
US-09-170-187-9
US-09-252-991A-6251
US-09-103-840A-1
US-09-252-991A-6209
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US-09-252-991A-8258
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REGISTRATION NUMBER: 32,837
REFERENCE/DOCKET NUMBER: CASE-02443
TELECOMMUNICATION INFORMATION:
TELEFRONE: (415) 397-8338
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CARRACTERISTICS:
LENGTH: 1010 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 8, Application US/08827190
Patent No. 5858367
1886 4 US
1886 4 US
1886 6 4 US
886 6 4 US
886 7 US
123025 4 US
123025 4 US
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125029 3 US
12503 3 US
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12508 1 
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RESULT 1
US-08-827-190-8
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 8, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 6420, Ap
Sequence 6430, Ap
Sequence 6339, Ap
                                                                                                                                 November 23, 2003, 17:21:14; Search time 76 Seconds (without alignments) 2160.454 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                           1 MHNQAPIQRRKSTRIYVGNV......RAKASQLDEARRIDVQQVEK 372
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                    GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-827-190-8
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US-09-557-884-1
4 US-09-557-884-1
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US-09-170-187-7
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US-09-252-991A-6339
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US-08-252-991A-6339
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Maximum Match 100%
Listing first 45 summaries
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Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
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Maximum DB seq length: 200000000
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Jatabase :

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Result

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Hordeum vulgare subsp. Spontaneum Eukaryota, Viridiplanteae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Viridiplanteae; Streptophyta; Enliopsida; Poales; Poaceae; Pooideae; Triticeae; Hordeum.

1 (bases 1 to 603)
Sato, K., Saisho, D. and Takeda, K.
Unpublished
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adult, heading stage top three leaves"

112 c 169 g 165 t l others
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152 ProThrProGlnAlaLeuLeuGluSerAlaMetArgHisValAspHisLeuAspArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          172 AsnPheAspGlnPheLysValSerValLysAlaSerAspValPheLeuAlaValGluSer
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                                                                                                                                                                                                                                                                                                                                                                         organism="Hordeum vulgare subsp. spontaneum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              603
222
38
22
22
38
                                                                                                                                                                                                                                           National Institute of Genetics
1111 Yata, Mishima, Shizuoka 411-8540, Japan
Tel: 81-559-81-6856
Fax: 81-559-81-6855
Fmail: tshini@genes.nig.ac.jp.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                           Contact: Tadasu Shin-i
Center For Genetic Resource Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels:
                                         Hordeum vulgare subsp. spontaneum
Hordeum vulgare subsp. spontaneum
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Job time : 2608 secs
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BJ551332.1 GI:24969783
EST.
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Best Local Similarity:
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                        KEYWORDS
SOURCE
ORGANISM
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AUTHORS
TITLE
JOURNAL
COMMENT
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/Mol_type="mrns" cucus
/clone="ST21504"
/lab host="s. coli BM25.8"
/clone lib="pine TriplEx shoot tip library"
/note="Organ: shoot tips; Vector: Lambda TriplEx; Site_1:
/note="Organ: shoot tips; Vector: Lambda TriplEx; Site_1:
Sfil (A); Site 2: Sfil (B); Shoot tips (approx. 2 cm from apex) were collected during the spring, frozen and used for mRNA isolation. The SMART-PCR method (Clontech) was used to prepare a library from 1 ug total RNA, using the Lambda TriplEx vector. Plasmid subclones in pTriplEx were recovered by cre-lox excision in E. coli strain BM25.8 and sequenced from the 5' end." 5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BJ551332 K. Sato unpublished cDNA library, strain H602 adult, heading stage top three leaves Hordeum vulgare subsp. spontaneum BJ551332 K. mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 141 GGTTTTCATAATTTTGTGTTTTCAATGAAAGCGAGCGATCCTGTAGTCATGGTTCAGGGA 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      201 TACCGTTTACTTGTTGCGGAGATGTATGTGCAAGGATGGGATTATCCATTGCATTTAGGA 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    261 GTTACTGAAGCTGGTGAAGGTGAAGATGGACGCATGAAGTTGGCATTGGAACA 320
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                        Forest Biotechnology Group

North Carolina State University
Dept. of Forestry, NC State University, 6113 Jordan Hall, Raleigh
TC, 27695-8008
Tel: 919-515-7800
Fax: 919-515-7801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24 ATGCGAATTGGCACAAACCATGGAAGTCTTTCCGATCGTACTATGAGTTATTATGGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrArgLeuLeuAlaLysGlnIle------AspGlnProLeuHisLeuGly
                                                                                                                              Email: rosswher@unity.ncsu.edu
Seg primer: 5' lambda TriplEx2 Sequencing Primer.
Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
57
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       Contact: Ross Whetten
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Best Local Similarity:
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ATG 489
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"COMPARISON OF RNA EXPRESSION PROFILES BETWEEN THE TWO GENERATIONS OF
PORPHYRA YEZOENSIS (RHODOPHYTA), BASED ON EXPRESSED SEQUENCE TAG FREQUENCY
                                                                                                                   130 IleProIleArgIleGlyValAsnAlaGlySerLeuGluLysAspLeuGlnGluLysTyr 149
                                                                                                                                              186
                                                                                                                                                                                                                            189
                                                                                                                                                                                                                                                                               204
                                                              110 GlyAsnileGlyAsnGluGluArgIleArgMetValValAspCysAlaArgAspLysAsn 129
                                                                                       73 GAGCATATT-----GAGGAGGTTTTTACACCATTGGTGGAAAAATGTAAGAAGTATGGA 126
                                                                                                                                                                       GlyGluProThrProGlnAlaLeuLeuGluSerAlaMetArgHisValAspHisLeuAsp 169
                                                                                                                                                                                      :::|||:::|||
244 AAGTIGGACTITCACAATITCGTCTICTCAATGAAAGCTAGCAATCCAGTAGTAATGGTT 303
                                                                                                                                                                                                                                                                                                        304 CAGGCGTATCGCCTTCTTGTAGCTGAGATGTATGTTCAGGGATGGGACTATCCTTTACAC 363
                                                                                                                                                                                                                                                                                                                                    LeuGlyIleThrGluAlaGlyGlyAlaArgSerGlyAlaValLysSerAlaIleGlyLeu 224
                                                                                                                                                                                                                                                                                                                                                            364 Trgggagtracrgaagcrggrgaaggrgaggarggaaggargaagrcrgcaarcggraft 423
                                                                                                                                                                                                                                                                                                                                                                                        GlyLeuLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeuAlaAlaAspPro 244
                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (15-JUN-2001) to the EMBL/GenBank/DDBJ databases.

Erika Asamizu, Kazusa DNA Research Institute. The First Laboratory for Plant Gene Research, 1532-3 Yana, Kisarazu, Chiba 292-0812, Japan (E-mail:asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/, Tel:81-438-52-3935(ex.2336), Fax:81-438-52-3934)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Porphyra yezoensis
Eukaryota, Rhodophyta, Bangiophyceae, Bangiales, Bangiaceae, Porphyra.
            AspTyrArgIleAlaLeuLysValAlaGluTyrGlyValAspCysLeuArgIleAsnPro
                                                                                                                                            127 CGTGCAATGCGCATTGGGACAAACCATGGGAGCCTTTCAGATCGCATTATGAGCTATTAT
                                                                                                                                                                                                                                                                              190 GluSerTyrArgLeuLeuAlaLysGlnIle-------AspGlnProLeuHis
                                    13 GACAGGCGAGCCCAGTTTGAGCAATTAGAGTACACAGAAGAAGAAGAACTC
                                                                                                                                                                                                                          170 ArgleuAsnPheAspGlnPheLysValSerValLysAlaSerAspValPheLeuAlaVal
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Last updated, Version 1)
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Location/Qualifiers

Phycol. 0:0-0(2003)

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AW042702 601 bp mRNA linear EST 18-SEP-1999
ST23E04 Pine TriplEx shoot tip library Pinus taeda cDNA clone
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                70
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                                                                                                                                                                                                                                                                                                                                                                                                                                                              14 TGTTTGAGA---AGCCCAAGGAGGCCGGACGGAGTACTCGGACGAGGAGTTCAACCGGC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ------CysAlaArgAspLysAsn----
                                                                                                                                                                                                                            other;
                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
db_xref="taxon:2788"
| mol_type="mkN4"
| organism="Porphyra yezoensis"
| clone="PF004b08_r"
                                                                                                                                                             0
                                                                                                                                                             BP; 100 A; 136 C; 170 G; 83 T;
                                                                                           /dev_stage="sporophytes"
/strain="TU-1"
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AW042702
AW042702.1 GI:5903147
                                                                                                                                                                                                                     3.42e-20
264.00
57.14%
42.24%
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AUTHORS
TITLE
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/done liberable.
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The Institute for Genomic Research
9712 Medical Center Dr, Rockville, MD 20850, USA
Brail: potato-array@tigo.org
This clone can be obtained from the University of Arizona Genomics
Institute. Orders can be made through URL:
http://genome.arizona.edu/orders/
Seq primer: M13F-R.
Location/Qualifiers
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Solanum tuberosum solanum tuberosum tuberosum tuberosum
Solanum tuberosum
Solanum tuberosum
Suberosum
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Suberosum
1 (Bases I to 706)
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/dev_stage="6 week old"
/lab_host="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-921-992-50 (1-372) x BG591263 (1-706)
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/clone="BPLI8G5"
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/cultivar="Kennebec"
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BG591263.1 GI:13609403
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Pred. No.:
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Hordeum vulgare subsp. spontaneum
Hordeum vulgare subsp. spontaneum
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; Pooideae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /fissue_type="top three leaves"
/dev_stage="adult, heading stage"
/dov_stage="adult, heading stage"
/clone_lib="K. Sato unpublished comb library, strain H602
adult, heading stage top three leaves"
1 15 g 160 t lothers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 Accaaggargrigccaagacrgrggaagaggggargaggarrgcagacagagggggrigar 129
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|30 TTTGTIAGAATAACCGTCCAGGGTAAAAGGAAGCTGATGCCTTTGAGATTAAGAAC 189
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        307 GCCGATCGCCGTGCCCAATTTGAAAAGCTGGAATATACTGAAGACGATTACGAAAAGGAG 366
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyAsnValProIleGlyAspGlyAlaProIleAlaValGlnSerMetThrAsnThrArg 37
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                                                                                                                                                                                   1 (bases 1 to 610)
Satco, K., Saisho, D. and Takeda, K.
Barley EST sequencing project in NIG and Okayama Univ Unpublished
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68
36
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Center For Genetic Resource Information
National Institute of Genetics
1111 Yata, Mishima, Shizuoka 411-8540, Japan
Fax: 81-559-81-6855
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/clone="bah58i01"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: tshini@genes.nig.ac.jp.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /mol_type="mRNA"
/strain="H602"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             113 GlyAsnGlu-------
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/dlone libe "HZ"
/dlone libe "HZ"
/note="Vector: pBluescript SK+; Site 1: EcoRI (5'-end of CDNA); Site 2: XhoI (3'-end of CDNA); pericarp 0-7
DAP(days after pollination). Due to a cloning artefact caused by the kit, in most cases the EcoRI site is NOT present, as well as the EcoRI adapter used for cloning excise the insert, restriction sites upstream EcoRI should be used (e.g. BamHI, Sall, PStI). NOTE: Also due to the cloning system used Blue/white selection for recombinats is not 100% reliable Average insert size is 900 bp"

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BJ481080 GI:21159548 EST.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              191
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     252 GAAAAGGAGCTTGAACACATTGAGAGGGTCTTTTCTCCATTGGTTGAGAAATGCAAGAAG 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     312 TATGGAAGAGCCATGCGTATCGGAACAATCATGGTAGTCTTTCTGACCGGATAATGAGC 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               148 LysTyrGlyGluProThrProGlnAlaLeuLeuGluSerAlaMetArgHisValAspHis 167
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               128 LysAsnileProlleArgileGlyValAsnAlaGlySerLeuGluLysAspLeuGlnGlu
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75 ATTAAGAACACTCTTGTCCAGAAGAATTACAACATCCCTCTAGCGGCCGATATCCATTT
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host="XL10-Gold"
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Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta;
Spermatophyta, Magnoliophyta, Liliopsida, Poales, Poaceae, Pocidea
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358 GTTATGAGGATAGCAGATAAAGGGGGCTGATTTTGTTAGAATAACAGTCCAGGGTAGAAAG 417
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                                                                                                                                                                                                                                                                                   595 GAATATACTGAAGATGATTATCAAAAAGAGCTTGAGCATATCGAGAAGGTCTTCTCCCCG
                                                                                                          |||:::|||
418 GAAGCTGATGCCTGCTTTGAGATTAAGAACACTCTTGTTCAGAAGAATTACAACATCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                               ---ValAspCysAlaArgAspLysAsnIleProlleArgileGlyValAsnAlaGlySer
  48 IleLysAlaLeuGluArgValGlyAlaAspIleValArgValSerValProThrMetAsp
                                                                                    ----LysLeuIleLysGlnGlnValAsnValPro
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HZ42M11r HZ Hordeum vulgare subsp. vulgare cDNA clone HZ42M11
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Institute of Plant Genetics and Crop Plant Research (IPK)
Corrensstr 3, 06466, Gatersleben, Germany
Tel: 039482-5522
                                                                                                                                                                                                                                                         103 AspCysLeuArgIleAsnProGlyAsnIleGlyAsnGlu-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /tissue_type="pericarp"
/dev_stage="0-7 DAP (days after pollination)"
                                                                                                                                                                                                                                                                                                                                             ------GluArgIleArgMetVal
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Insert Length: 602 Std Brror: 0.00
Plate: 42 row: M column: 11
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/clone="HZ42M11"
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CA022320
CA022320.1 GI:24299694
                                                                                      68 AlaAlaGluAlaPhe----
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DEFINITION
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TITLE
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                                                                                                                                                                                                                                                                                                                               linear EST 08-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oryza sativa (indica cultivar-group)

Bukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Brhartoideae; Oryzae; Oryzae; Oryzae;
1 (bases 1 to 852)
Jantasuriyarat, C., Lu, G., Gowda, M., Hatfield, J., Zhou, B., Mazur, E., Kudrna, D., Dean, R., Soderlund, C., Wing, R., and Wang, G.

Large-scale identification of ESTs involved in the interaction , between rice and Magnaporthe grisea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28 ileAlaValGlnSerMetThrAsnThrArgThrThrAspValGluAlaThrValAsnGln 47
111 TATITGGGGATAGGTTGGTGCTGTGTACGACGGGATAGGAGACACCATCAGGATTTCGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlnArgArgLysSerThrArg1leTyrValG1yAsnValPro11eG1yAspG1yAlaPro
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238 AGGAGGAGAAAACCCGCACTGTGATGGTTGGGAATGTGCCACTTGGCAGTGATCATCCC
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/organism="Oryza sativa (indica cultivar-group)"
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/cultivar="IR36"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arizona Genomics Institute
University of Arizona
Biological Sciences West, 448A, P.O. Box 210088, Tucson,
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Mismatches:
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BACKWARD: gga aac agc tat gac cat g
Plate: 04 row: B column: 06
Seq primer: gta aaa cga cgg cca gtg.
Location/Qualifiers
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                                                                                                                                                                                                                                                                                                                               852 bp
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                                                                                                           241 AlaAlaAspProValGluGluIle
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Fax: 520 621 9288
Email: http://geno
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Contact: Rod Wing
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//CLORE=1103=179 MBN # 301
//CLORE=1200 MBN # 301
HOST Labory 
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          169 AspArgLeuAsnPheAspGlnPheLysValSerValLysAlaSerAspValPheLeuAla 188
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                             /dev stage="asexual blood forms"
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/clone_lib="Pv MBN #30"
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/organism="Plasmodium vivax"
/mol_type="genomic DNA"
/strain="Salvador I (Collins, W. 1972. J. Parasitol. 69,
497-598)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AZ570993 658 bp DNA linear GSS 15-MAY-;
281PvD07 Pv MBN #30 Plasmodium vivax genomic 3', genomic survey
                                                                                                                                                                                                                                                                                                                                                                                                                                                      270 TGCCCAACATGTGGTCGTTTAGAATATGACCTTTTCCCCGTTGTAAAAGAATTAGAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       290 ArgLeuGluAspIleIleThrProMetAspValSerIleIleGlyCysValValAsnGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     390 CCCAGGAGAAAAAAAAAAAGCTGATTTAGGGATTGCTGGTGGTAAAAATGGTGGAATTAT
                                                                                                                               GluSerTyrArgLeuLeuAlaLysGlnIleAspGlnProLeuHisLeuGlyIleThrGlu
                                                                                                                                                    31 CAAGCTTATACCTTAGCTAGTAAAGAATGAAATTATCCCCTTCATCTAGGGATGCT-GAA
                                                                                                                                                                                                       210 AlaGlyGlyAlaArgSerGlyAlaValLysSerAlaIleGlyLeuGlyLeuLeuLeuSer
                                                                                                                                                                                                                                         90 GCTGGTAGTCATCATACCGGAACAANNAAATCATGTAGTGGTTTGTCACCGCTTCTTTT
                                                                                                                                                                                                                                                                              230 GluGlyIleGlyAspThrLeuArgValSerLeuAlaAlaAspProValGluGluIleLys
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|GTTGGTAAACGAATGTTAAATTCATTAGGACTTTATGATAACATTGTTGATATAATTGCT
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Bukaryota; Alveolata; Apicomplexa; Haemosporida; Plasmodium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Dame JB
Dept. of Pathobiology, College of Veterinary Medicine
University of Florida
2015 SW 23rd Avenue, Bldg 1017, Gainesville, FL 32611,
Tel: 352 392 4700
Fax: 352 392 9704
Email: damej@mail.vetmed.ufl.edu
Seg primer: M13(-20) forward
Class: shotgun.
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Carlton,J.M.-R. and Dame,J.B.
The Plasmodium vivax and P. berghei gene sequence
Parasitol. Today (Regul. Ed.) 16 (10), 409 (2000)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Plasmodium vivax (malaria parasite P. vivax)
   Conservative:
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Indels:
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                                                                                            US-09-921-992-50 (1-372) x BH235010 (1-720)
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||| :::||||:::||| TGC---TTTGACAAATACGTGAAACTTTGCTGACAGGGGAGCCCAGTT 127
                                                          -GluGluArg 117
                                                                                          128 GAGCAATTAGAGTACACAGAAGATGACTATCAGAAAGAACTCGAGCATATTGÁGGÁGGTT 187
                                                                                                                             118 IleArgMetValValAspCysAlaArgAspLysAsnIleProIleArgIleGlyValAsn 137
                                                                                                                                                                    247
                                                                                                                                                                                                       138 AlaGlySerLeuGluLysAspLeuGlnGluLysTyrGlyGluProThrProGlnAlaLeu 157
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248 CATGGGAGCCCTTCAGATCGCATTATGAGCTATTATGGGGAC---TCGCCTAGGGGAATG 304
                                                                                                                                                                                                                                                                            158 LeuGluSerAlaMetArgHisValAspHisLeuAspArgLeuAsnPheAspGlnPheLys 177
                                                                                                                                                                                                                                                                                                                 305, GTAGAATCAGCATTTGAGTTTGCAAGAATTTGTAGAAAGTTGGACTTTCACAATTTCGTC 364
                                                                                                                                                                                                                                                                                                                                                        178 ValSerValLysAlaSerAspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLys 197
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Department of Entomology
The Ohio Stete University-OARDC
120 Thorne Hall, 1680 Madison Avenue, Wooster, OH 44691,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Spiroplasma kunkelii
Spiroplasma kunkelii
Bacteria; Firmicutes; Mollicutes; Entomoplasmatales;
Spiroplasmataceae; Spiroplasma.
1 (bases 1 to 720)
Hogenhout, S.A.
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Unpublished
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/clone="PH_05.x"
/clone_lib="Spiroplasma
96 c 132 g 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /mol_type="genomic DNA"
/strain="M2"
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Class: HindIII fragments.
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Fax: 330 263 3686
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Pred. No.:
Score:
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329

329 309 389 349

USA

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/lan.nose="Source."
/lan.nose="Source."
/lan.nose="Vector: pBluescript SK(-); Site 1: ECORI; Site_2: Xhoī; Tissue supplied by Christian Bachem and Richard Visser (Department of Plant Breeding, Wageningen University, The Netherlands); sequencing py The Institute for Genomic Research. The CSTA libraries will attempt to capture the induction and initiation/initial growth of the tuber in an in vitro system as described in Bachem et al. (Plant Journal, 1996). Small microtubers develop from axillary buds attached to stem explants when placed on a high sucrose medium (10%). Visible morphological changes occur synchronously at day five in the axillary buds. The first library, cSTA (1-20) consists of axillary buds in induction of the microtubers those genes involved in induction of the microtubers. The following libraries, cSTA (21-40) and cSTA (41-60), capture genes involved in tuber initiation and outgrowth. This library is noted as P3 in Tanksley lab notebooks."
579 bp mRNA linear EST 10-MAR-2003
EST540823 potato microtubers, in vitro-grown Solanum tuberosum cDNA
E1920888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---- 114
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /dev_stage="7, 8 and 10 days"
/lab_host="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Solanum tuberosum"
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/clone="cSTE26D20"
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/cultivar="Bintje"
                                                                                      BI920888.1 GI:16216916
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/db_xref="taxon:287"
/clone="pacs2-164_970"
/clone lib="pacs2-164"
/note="clinical isolate 2-164 Whole genomic shotgun
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--GluArgIleArgMetVal--- 121
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Pseudomonadaceae; Pseudomonas.
1 (bases 1 to 1268)
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Burns, J. L., Kaul, R. and Olsen, M. V.
Whole-Genome-Sequence variation among multiple isolates
Psedomonas aeruginosa library
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Box 352145, Seattle, WA 98105-21.
Fer: 2062216954
Fex: 2066857244
Email: craymond@u.washington.edu
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Contact: Chris K. Raymond
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Submitted (25-APR-2002) Maize Mapping Project, University of
Missouri, Columbia, MO 65211, USA
If you are interested in getting corresponding physical clones,
If you are interested in getting corresponding physical clones,
these are publicly available from ZmDB and may be found by BLAST
searching at MSL, maizemap.org; ZmDB, www.zmdb.iastate.edu; TIGR,
www.tigr.org; or NCBI, www.ncbi.nlm.nih.gov. When the source of the
maize cDNA sequences is either Virginia Walbot, Stanford or Pat
Schnable, interest of them clones may be requested from ZmDB:
                                                                                                                                                                                                                  HTC 16-OCT-2002
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Spermatophyta, Magnoliophyta, Liliopsida, Poales, Poaceae, PACCAD
clade, Panicoldeae, Andropogoneae, Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Inter-this sequence is part of a project of EST assemblies resulting from the application of public contigs to seed DuPont contigs; this resource was assembled by DuPont as part of a collaboration for the overgo addressing of BACs in conjunction with the Maize
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----LeulleLysGlnGlnValAsn
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| Da_xref="malacDB:636753"
| db_xref="atxon:4577"
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28a mays PC0116062 mRNA sequence.
AY104363
AY104363.1 GI:21207441
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
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326.50
49.66%
33.90%
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Unpublished (2002)
2 (bases 1 to 1442)
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CTTGTTCAGAAGAATTACAACATCCCCCTAGTGGCTGATATTCATTTTGCCCCGACAGTT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116 GluArgileArgMetVal------ValAspCysAlaArgAspLysAsnIlePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             :::|||
362 GACTTCCATAACTTTGTGTTTTCAATGAAAGCAAGTAACCCTGTTATCATGGTCCAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeulleLysGlnGlnValAsnValProLeuValAlaAspIleHisPheAspTyrArgIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94 AlaLeuLysValAlaGluTyrGlyValAspCysLeuArgIleAsnProGlyAsnIleGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :::
125 GATCGCCGTGCCCAATTTGAGCAGCTTGAATATACTGAAGATGATTATCAAAAAGAGCTT
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34
29
58
58
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Matches:
Conservative:
Mismatches:
Indels:
                                                                  b
                                                                                               cca gtg
        Fran.:
PCR PRimers
FORWARD: gta aaa cga cgg cca gtg
BACKWARD: gga aac agc tat gac cat
Plate: 03 row: 0 column: 03
Seq.primer: gta aaa cga cgg cca g'
Location/Qualifiers
Location
Fax: 520 621 9288
Email: http://genome.arizona.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
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                                                                                                                                                                                         /db_xref="taxon:39946"
/clone="OSIIEa03003"
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348.50
56.93$
40.10$
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Shartsautryarat, C., Lu,G., Gowda,M., Hatfield,J., Zhou,B., Mazur,E.,
Kudrna,D., Dean,R., Soderlund,C., Wing,R. and Wang,G.
Large-scale identification of ESTs involved in the interaction
                                                                                                                                            115
                                                                                242
                                                                                                                                                                                                                                                                                                                                                                                                                                           176
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                                                                                                                                                                                                                                                       -------GluArgileArgMet 120
                                                                                                                                                                                                                                                                                                                 Val------ValAspCysAlaArgAspLysAsnIleProlleArgileGlyVal 136
                                                                                                                                                                                                                                                                                                                                                 362
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                                                                                                                                                                                                                                                                                                                                                                                                           AATCATGGAAGTCTGTCTGACCGCATAATGAGTTACTATGGTGAT---TCTCCACGCGGA 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    177 LysValSerValLysAlaSerAspValPheLeuAlaValGluSerTyrArgLeuLeuAla 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    211
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Oryza sativa (indica cultivar-group)
Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Poales, Poaceae,
Ehrhartoideae, Oryzeae, Oryza.
                                                                                                                            86
                                 65
    63
                                                             64 ProThrMetAspAlaAlaGluAlaPhe------LysLeuIleLysGlnGln 78
                                                                                                                         79 ValAsnValProLeuValAlaAspIleHisPheAspTyrArgIleAlaLeuLysValAla
                                                                                                                                                                                                         ACCGTAGAGGAGGTTATGAGGATAGCAGATAAAGGGGCTGATTTTGTTAGAATAACAGTC
                                                                                                                                                                                        GluTyrGlyValAspCysLeuArgIleAsnProGlyAsnIleGlyAsnGlu-----
                                                                                                                                                                                                                                                                                    243 TTTGAGCAGCTTGAATATACTGAAGATGATTATCAAAAAGAGCTTGAGCATATCGAGAAG
                                                                                                                                                                                                                                                                                                                                              GICTICICCCCGTIGGIIGAGAAAIGCAAGCAGIAIGGAAGAAGAGCAAIGCGIAIAGGAACA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               212 GlyAlaArgSerGlyAlaValLysSerAlaileGlyLeuGlyLeuLeuLeuSerGluGly
 ThrValAsnGlnIleLysAlaLeuGluArgValGlyAlaAspIleValArgValSerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 197 LysGlnIle-----AspGlnProLeuHisLeuGlyIleThrGluAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OSIIEa03003.f OSIIEa Oryza sativa (indica cultivar-group) cDNA Clone OSIIEa03003 5', mRNA sequence.
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University of Arizona
Biological Sciences West, 448A, P.O. Box 210088, Tucson,
85721-0088, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     between rice and Magnaporthe grisea
Unpublished
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Tel: 520 626 3967
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CB619369
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/tissue type="Leaf"
/dev_stage="3 week"
/dev_stage="3 week"
/dev_stage="3 week"
/clone_lbe="DH108"
/note="Vector: pBluescript II KS +; Site_1: EcoRI; Site_2:
XhoI; Lesion Mimic SPL 11"
1 168 c 223 g 240 t
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       132 IleArgileGlyValAsnAlaGlySerLeuGluLysAspLeuGlnGluLysTyrGlyGlu 151
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/note="Vector: pBluescript II KS +; Site 1: EcoRI; Site 2: XhoI; 24 hrs after innoculation with Rice Blast (70-15)" 155 c 217 g 224 t 1 others
                                                                                                                                                                                                                                                                                                                                     EST 09-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Bukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatochyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Burhartoideae; Oryzae, Oryza.

1 (bases 1 to 828)
Jantasuriyarat,C., Lu,G., Gowda,M., Hatfield,J., Zhou,B., Mazur,E.,
Jantasuriyarat,C., Lu,G., Gowda,M., Hatfield,J., Zhou,B., Mazur,E.,
Large-scale identification of ESTs involved in the interaction
between rice and Magnaporthe grisea
       626 CTGGTGCCGATGGACGTGGCCGTAATCGT-TGCGTCGTTAACGGTCCGGGCGAAGCCAAG 684
                                                                                               685 GAGCCCATGGTTGGCTC-ACCGGCCC-TCCGAACCTGGTGTATTCGACGGGAAAG 742
                                                                                                                                             335 Arg---LysAspArgLeuAspAsnAsnAspMetIleAspGinLeuGluAlaArgIleArg 353
                                                                                                                                                                                                                                                                                                                                   CB669733 S28 bp mRNA linear EST 09-APR-20 OSJNEe02H05.f OSJNEe Oryza sativa (japonica cultivar-group) cDNA clone OSJNEe02H05 5', mRNA sequence.
                                                                     315 ValSerThrLeuGlyValThrGlyGlyAsnLysLysSerGlyLeuTyrGluAspGlyVal
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Arizona Genomics Institute
University of Arizona
Biological Sciences West, 448A, P.O. Box 210088, Tucson,
                                                                                                                                                                                743 ccggrgrcagaarcrggcccaacgacaaccrrggrgaaccaccac
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Seq primer: gta aaa cga cgg cca gtg.
Location/Qualifiers
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Fax: 520 621 9288
Email: http://genome.arizona.edu
PCR PRimers
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394 318 g 371 t
aeruginosa"
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Matches:
Conservative:
Mismatches:
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Box 352145, Seattle, WA 98105-2145,
Tel: 2062216954
Exa: 2066857244
Email: craymond@u.washington.edu
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ΑZ

GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.

OM protein - nucleic search, using frame\_plus\_p2n model

(without alignments)
3477.410 Million cell updates/sec November 23, 2003, 17:20:49 ; Search time 2600 Seconds

Run on:

US-09-921-992-50

1866 1 MHNQAPIQRRKSTRIYVGNV.......RAKASQLDBARRIDVQQVEK 372 Perfect score: Sequence: Title:

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22781392 seqs, 12152238056 residues Searched:

45562784 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 08
Maximum Match 1008
Listing first 45 summaries

Command line parameters:

-MODEL=frame+ printmodel -DEV=x1h
-Q=/cgn2\_1/USPTO\_spool/USO9921992/runat\_21112003\_162546\_18418/app\_query.fasta\_1.519
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29: gb\_gss2:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Description	BZ57575	9733 CB669733 OSJNEe02	19369 CB61936	04363 AY10436	69685 pacs2-16	888 BI92088	5010 BH235010 PH 05.x	3 AZ570993 281PVD07	24/9 24/9	1080 BJ48108	91263 BG59126	5794 Au186794	2702 AW042702	21332 2069 2069	55443 BJ46544	1187 AV934187	30994 BQ08099	2386 AU252386 AU25238	312	72370 0 77700 MIDDA160 OCC138	24160 QGG37N 2869 A1482869 EST2421	75044 BO975044 OHI18D	5844 AV626844 AV62684	24238 BST42800	18059 BU048059 PP_LEA00	3447 BT93344	35868 BG525868 53-47-1-	52800 BQ862800 QGC22B19	10208 CB620208 OSIIEa05	91771 CB29177	28414 CB628414 OSIIEb03	77824 msh2_558	21/20 CA/81/20 046F0/AF	3750 BM037608 A301002	BG124857 EST47050	AW738440 EST339867	2235 CB662235 OSJNEGO	
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ALIGNMENTS

msh2\_4614.x1 msh Pseudomonas aeruginosa genomic clone msh2\_4614, genomic survey sequence.
BZ575759 GI:27210820
GSS. RESULT 1 BZ575759 LOCUS DEFINITION

ACCESSION

Pseudomonas aeruginosa VERSION KEYWORDS SOURCE ORGANISM

REFERENCE

Pseudomonas aeruginosa Bacteria, Proteobacteria, Gammaproteobacteria, Pseudomonadales, Pseudomonadaceae, Pseudomonas. 1 (bases 1 to 1323)

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957 GCTTTGGGTGAAGCAAGCATGCAGCATGGCGATCGCTTTTGGGAATCGCAGCGGTTTG 1016
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229 SerGluGly11eGlyAspThrLeuArgValSerLeuAlaAlaAspProValGluGluIle 248
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                                                                                                                                              269 AlaCysProThrCysSerArgGlnGluPheAspValIleGlyThrValAsnAlaLeuGlu 288
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Search completed: November 23, 2003, 17:55:54 Job time : 2022 secs

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                                                             AspArgLeuAsnPheAspGlnPheLysValSerValLysAlaSerAspValPheLeuAla 188
                                 TyrGlyGluProThrProGlnAlaLeuLeuGluSerAlaMetArgHisValAspHisLeu 168
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                                                                                                                      GluAlaGlyGlyAlaArgSerGlyAlaValLysSerAlalleGlyLeuGlyLeuLeuLeu 228
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                                                                                                                                                                                                                                               GlyProGlyGluAlaLeuValSerThrLeuGlyValThrGlyGlyAgnLysLysSerGly 328
                                                                                                                                                                                                                                                                            GHPO protein; Helicobacter infection; gastroduodenal disease; gastritis;
peptic ulcer disease; ss.
               AsnileProileArgileGlyValAsnAlaGlySerLeuGluLysAspLeuGlnGluLys
                                          ValGluSerTyrArgLeuLeuAlaLysGlnIleAspGlnProLeuHisLeuGlyIleThr
                                                                                                                                    GAATCTGGTACGCAGTTTGCTGGAGGAATAAAAGTGCTGCTGGTTTAGGAGCGATACTC
                                                                                                                                                 SerGluGlyIleGlyAspThrLeuArgValSerLeuAlaAlaAspProValGluGluIle
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                                                                                                                                                                              LysvalGlyPheAspIleLeuLysSerLeuArgIleArgSerArgGlyIleAsnPheIle
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24-JUN-1997;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 68
                                                                                                                                                                                                                                                                                                                        This sequence represents a polynucleotide of the invention. It was isolated from Helicobacter pylori and encodes a H.pylori GHPO protein. The polypeptides can be used for preventing or treating Helicobacter infections, and gastroduodenal diseases associated with these including acute, chronic, and atrophic gastritis, and pepticuleer diseases, e.g. gastric and duodenal ulcers. They can also be used for the production of antibodies. The products can also be used for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AsnIleProlleArgIleGlyValAsnAlaGlySerLeuGluLysAspLeuGluLys
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Conservative:
Mismatches:
(HUMA-) HUMAN GENOME SCI INC.
(INWR ) MERIEUX ORAVAX PASTEUR MERIEUX SERUMS
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                                                                   Al-Garawi A, Kleanthous H, Miller C,
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794.00
66.38%
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P-PSDB; AAW98298.
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Best Local Similarity:
Query Match:
DB:
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Listeria monocytogenes 4b contig DNA sequence #1090
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                                            infection;
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                                                                                                                         TGGGGGGCGTGGAACCCCGGCAACATCGTAAGTTCGACGAGAGTCGGCCCGGAC 119120
                                                                                                                                                                              119121 ATCTGCAAGGCCGCCACCGACGCAAGCATCTCGCTGCGTATCGGTGAACGCCGGCTCG 119180
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 118881 CCTGCCACGTTGCAGCAGATCGCCGAACTGACCGCCGCCGCCGCCGCAACTGCTGCGCGGG 118940
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                                                                                 CCGGTCATCGCCGATATCCACTTCCAGTCCAATACGTGTTCCAGGCCATCGACGCCGCGGC
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                                           118941 GCCGTGCCGAGTCAGGACGATGCCGACGCACTGCCGGAATCTGCCGCAAATCGCCGATT
                                                                 ProLeuValAlaAspIleHisPheAspTyrArgIleAlaLeuLysValAlaGluTyrGly
                                                                                                             ValAspCysLeuArgIleAsnProGlyAsnIleGlyAsnGluGluArgIleArgMet---
                                                                                                                                                         ValValAspCysAlaArgAspLysAsnileProlleArgileGlyValAsnAlaGlySer
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                      Serval ProThrMetAspAlaAlaGluAlaPheLysLeuIleLysGlnGlnValAsnVal
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMBG7188-AB071212) from Listeria sp. The sequences are useful as prober and primers for identification and/or detection of Listeria (e.g. as contaminants in foods, or mutational analysis) and for analysis of gene expression. Proteins encoded by the nucleic acid sequences can be used to screen for compounds that modulate gene expression, replication and pathogenicity of Listeria (potential therapeutic agents), also for treating infections by Listeria, and are useful as immunogens in
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             anti-Listeria vaccines.

Note: The sequence data for this patent did not form part
of the printed specification, but was obtained in electronic format
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for detection
Antibacterial; Listeria; food contamination; mutational analysis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genomic sequences from Listeria species, useful for detectior
atment and prevention of infection, also related polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  directly from WIPO at ftp.wipo.int/pub/published_pct_sequences
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       29 AlaValGlnSerWetThrAsnThrArgThrThrAspValGluAlaThrValAsnGlnIle
                                          LysAlaLeuGluArgValGlyAlaAspIleValArgValSerValProThrMetAspAla
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Bifidobacterium longum NCC2705, Bifidobacterium, bacterial; antidiarrheic, antibacterial; inhibitor of Salmonella, detection;

Bifidobacterium longum NCC2705 genomic sequence SEQ ID NO:1.

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The present invention describes a polynuclectide (I) comprising a sequence of a Bifidobacterium genome selected from the nucleotide sequence given in ABQ81842 and ABQ81843, or a sequence exhibiting at least 90% identity or which hybridises with the sequence given in ABQ81843. Also described is a polynucleotide (II) encoding a fusion procein, comprising a sequence selected from 1097 sequences given in ABB65258 to ABB66354 ligated in frame to a polynucleotide (II) encoding a heterologous polypeptide. (I) has antidiarrheic and conding a heterologous polypeptide. (I) has antidiarrheic and antidiate activities, and can be used as an inhibitor of Salmonella. (I) (which is a probe) is useful for the detection and/or identification of Bifidobacterium longum in a biological sample. A carrier containing the lateric acid bacterium Bifidobacterium longum MC2705 (CNCW I-2618) can be used for preventing and/or treating diarrhoea brought about by pathogenic bacteria and/or rotavirus. The carrier is a food composition selected from milk, yogurt, curd, cheese, fermented milks, milk based fermented products, ice-creams, fermented cereal based products, infant formula, per food or a pharmaceutical composition selected from tablets; liquid bacterial suspensions, dried oral composition selected from tablets; liquid bacterial suspensions, dried oral composition of the Bifidobacterium gene, ABQ818850 represent selected from tablets and or a pharmaceutical composition or shifth arrays or chips to carry out analysis of the bifidobacterium gene, ABQ818850 represent
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Listing from the present invention but not mentioned further within the
identification; lactic acid bacterium; diarrhoea; pathogenic bacteria; rotavirus; food composition; pharmaceutical composition; gene; ds.
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longum in a biological sample
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Query Match:
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The invention describes a method of monitoring differential expression of genes in a first Bacillus cell relative to expression of the genes in other Bacillus cells, comprising hybridising labelled nucleic acid probes isolated from Bacillus cells to a substrate containing array of Bacillus genomic sequenced tags (GST), examining the array, and determining capturing the array, and determining to a spot in the array. The method is useful for measuring the expression of a spot in the array. The method is useful for measuring the expression of capture second Bacillus cells. The method is useful for monitoring global expression of several genes from a Bacillus cell, discovering new genes, identifying possible functions of unknown open reading frames and continuing gene copy number variation and stability. Monitoring changes in expression of genes may be used to provide a representation of the way in which Bacillus cells adapt to changes in culture conditions, in which Bacillus cells adapt to changes in culture conditions, continuous and parass or other physiological provocation. Extensive continuous on a paray equals one gene or one open reading frame, since sequence information is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            equals one gene or one open reading frame, since sequence information is available. This sequence represents a genomic sequence tag (GST) used in the method of the invention.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Monitoring differential expression of several genes in first Bacillus cell relative to expression of same genes in one or more second Bacillus cells, by using substrate containing Bacillus genomic
                                                                                                                                          tag; GST;
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Matches:
Conservative:
Mismatches:
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                                                                                                                                          genomic sequenced
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                                                                 Bacillus licheniformis genomic sequence
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                                                                                                                                              gene expression;
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27-MAR-2001; 2001US-279526P.
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   (first entry)
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13-AUG-2002
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ABK74401 standard; DNA; 1083

ABK74401

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349 GluhlahrgilehrghlaLysAlaSerGlnLeuAspGluAlaArgArgileAspValGln 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New genomic sequences from Listeria species, useful for detection, treatment and prevention of infection, also related polypeptides, antibodies and modulators
                                                                                                                                                                                                                            Antibacterial; Listeria; food contamination; mutational analysis;
                                                                                                                                                                                                     Listeria monocytogenes 4b contig DNA sequence #881.
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Matches:
Conservative:
Mismatches:
Indels:
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(CNRS ) CNRS CENT NAT
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                                                           ArgLysSerThrArg---IleTyrValGlyAsnValProileGlyAspGlyAlaProile 28
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GAAGATTTAGATTTTATGATATCATTGTTTCTTTGAAGGCTTCTGATGTGAATTTAGCA
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Indels:
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3123 CGCGAAAACACTCGGCCAGTCCAAGTAGGTAATTTAACTATTGGTGGGTAGTGAGGAATTA 3182
                                           (ABQĞ7188-ABQ71212) from Listeria sp. The sequences are useful as probes and primers for identification and/or detection of Listeria (e.g. as contaminants in foods, or mutational analysis) and for analysis of gene expression. Proteins encoded by the nucleic acid sequences can be used to screen for compounds that modulate gene expression, replication and pathogenicity of Listeria (potential therapeutic agents), also for treating infections by Listeria, and are useful as immunogens in
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               format
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present invention relates to nucleic acid sequences
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Claim 1; SEQ'ID No 1; 192pp; French.
                                                                              ABA03041 standard; DNA; 2944528 BP.
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67.68%
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                                 1096 AGCCTT 1101
           369 GlnVal 370
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Best Local Similarity:
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                                                                                          79 ACTATCCAAAGCATGACTACTACAAAGACACATGATGTCGAAGCAACAGTAGCAGAAATT 138
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(ABQ67188-ABQ71212) from Listeria sp. The sequences are useful as probes and primers for identification and/or detection of Listeria (e.g. as contaminants in foods, or mutational analysis) and for analysis of gene expression. Proteins encoded by the nucleic acid sequences can be used to screen for compounds that modulate gene expression, replication and pathogenicity of Listeria (potential therapeutic agents), also for treating infections by Listeria, and are useful as immunogens in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                format
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New genomic sequences from Listeria species, useful for detection, treatment and prevention of infection, also related polypeptides, antibodies and modulators
contamination; mutational analysis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic fo directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
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Mismatches:
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specification e.g. is useful for aidentifying diagnostic and therapeutic compositions. M. catarrhalis (Branhamella catarrhalis) is a large aerobic, gram-negative diplococus, normally found among the bacterial flora of human upper airways. M. catarrhalis is known to cause acute, localised infections such as citis media, sinusitis and bronchopulmonary infection and life-threatening, systemic diseases including endocarditis and meningitis.
number of uses described in the
AAF28514-AAF28554). The library has a
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Sequence 33140 BP; 9472 A; 6496 C; 7384 G; 9787 T; 1 other;

Mathis   M		2.81e-109 Length: 33140 1166.00 Matches: 220 78.92\$ Conservative: 72 7:59.46\$ Mismatches: 76 62.49\$ Indels: 2 22 Gaps: 1	372) x AAF28536 (1-33140)	GlnAlaProlleGlnArgArgLysSerThrArgIleTyrValGlyAsnVal 20			hrvalasnGlnIleLysAlaLeuGluArgValGlyAlaAspIleValArg 60	CAGTTGCACAAATTCAGCGATGCGTGGACGCAGGTGCGGACTTGATGCGT 2	ValSerValProThrMetAspAlaAlaGluAlaPheLysLeuIleLysGlnGlnValAsn 80                   :::::  GTATCGACACCAACGATGGAGAGGGTCGCTGCCTTTGCTGAGATAAAAAACGCGTATCC 21974	LeuValAlaAspIleHisPheAspTyrArgIleAlaLeuLysValAlaGluTyr 100	:::                        ::::	AspCysLeuArglleAsnProGlyAsnIleGlyAsnGluGluArglleArgMet 120	CCAGGTAATTGGCAATGATCAAAAGTCA	AspCysAlaArgAspLysAsnlleProlleArglleGlyValAsnAlaGlySer 140	recedantematederendanderen	euGluLysAspLeuGlnGluLysTyrGlyGluProThrProGlnAlaLeuLeuGluSer 160	TTGAAAAGGATTTACAAAAAAAAAATTTCGAGAACCGACAGGTGGAGGCGATGCTAGAATCG 22214	rgHisV	GCCACATTGATTTTAGAAAATCTTAATTTTCAGAATTATAAATCTCAG	SerAspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLysGlnIleAsp 200	GTATTTTTAACCCTTGATGCGTATCGATTGATTTC	LeuHisLeuGlyIleThrGluAlaGlyGlyAlaArg	CATCTTGGCGTTACCGAAGCGGGCGTATATCGCAC	3lyLeuGlyLeuLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeu 240	ATGGCATTGGCGATACCATGCGTAT		laAlaAspProValGluGluIleLysValGlyPheAspIleLeuLysSerLeuArgIle 260
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22515 CGTAGTPAPTGGCGTCAATTTTTATTGCTTGTCCAAGTTGTTGTAGCCGTCAAGAGTTTGATGTG 22574
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                                                              IleGlyThrValAsnAlaLeuGluGlnArgLeuGluAspIleIleThrProMetAspVal 300
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261 ArgSerArgGlylleAsnPhelleAlaCysProThrCysSerArgGlnGluPheAspVal
                                                                                                                                                                                         321 ThrGlyGlyAsnLysLysSerGlyLeuTyrGluAspGlyValArgLysAspArgLeuAsp
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Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/pub/published_pct_sequences.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Antibacterial; Listeria; food contamination; mutational analysis;
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                                                                                                                                                                                                                                                                                                                                                 22815 GATAAACGGCCAAATGAGATTATCCGTATA 22844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Listeria monocytogenes EGD DNA sequence #90.
                                                                                                                                                                                                                                                                                                                     361 GluAlaArgArgIleAspValGlnGlnVal 370
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                                                                                                                                                                                                                                                                                                                                                                                                                 ABQ67966 standard; DNA; 1107 BP
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314872 ACAACCTTTGCATATTGGCATAACTGAATCCGGTGGTTTAAGGAATGGAACAGTTAAA 314931
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genomic library; bacteria; human upper airway; otitis media; sinusitis;
bronchopulmonary; endocarditis; meningitis; ss.
                                                                                       314992 TTAGCGGCACATCCAACTGAAGAAGTAAAAGTAGGTTATGACATTTTAAAAGTTTTATCT
                                                                                                                                           LeualaalaaspProValGluGluIleLysValGlyPheAspIleLeuLysSerLeuArg
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 1; Page 191-199; 545pp; English.
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                                     The present invention describes a gene (I) derived from Buchnera sp. containing the DNA (a) or (b), (a) has a fully defined base pair sequence selected from a table of sequences found in the Buchnera sp. genomic DNA of ABA92787 given in the specification or is a DNA selected from a table of sequences, and (b) is a DNA which hybridises with the DNA (a) and encodes a protein. Also described are: (1) a recombinant vector (II) containing (I); (2) a transformant (III) containing (II); (3) a genomic DNA of Buchnera sp. containing the sequence given in C ABA92787; (4) a plasmid derived from Buchnera sp. containing DNA (c) or (d), (c) is a DNA containing a fully defined sequence given in ABA92789; (e) is a plasmid which hybridises with a DNA; and (5) a method for the preparation of a protein in which (III) is cultured and the expression protein of the objective protein is collected from the resultant culture. The DNA is useful for developing agricultural chemicals for exterminating cockroaches. The present sequence represents the preparation of the objective protein is sequence represents the present sequence from the contains and sequence of the presents of the specifically claimed Buchnera sp. genomic DNA sequence from the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         314272 ATGAATAATAATGAAAATTATCAATAGAAAAATCTGATCGTATTTATGTTGGAAAA 314331
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391812 GTAAATGCGCTAGAACAACGCCTTGAAGATATTATTACACCAATGGATGTATCTATTATC 391871
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    HisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSerValLysAlaSer 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   324 AsniysiysiysSerGlyLeuTyrGluAspGlyValArg---LysAspArgLeuAspAsnAsn
                     343 AspMetIleAspGlnLeuGluAlaArgIleArgAlaLysAlaSerGlnLeuAspGluAla
                                                                             GATGTATTCTTAGCGGTTGAATCTTATCGTTTACTGGCTAAAAGCAATTAAAACAGCCTTTA
                                                                                                                                                                                 LeuGlyLeuLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeuAlaAlaAsp
                                                                                                                      HisLeuGly11eThrGluAlaGlyGlyAlaArgSerGlyAlaValLysSerAla11eGly
                                                                                                                                                   cartragecarracagaagcaggreecacecececegerecagraaarcreeagreeger
                                                                                                                                                                                                                                          ProValGluGluIleLysValGlyPheAspIleLeuLysSerLeuArgIleArgSerArg
                                                                                                                                                                                                                                                                                                   GlyIleAsnPheIleAlaCysProThrCysSerArgGlnGluPheAspValIleGlyThr
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                                                              AspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLysGlnIleAspGlnProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Buchnera; cockroach-symbiotic bacterium; cockroach extermination;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genomic DNA of cockroach-symbiotic bacterium
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (RIKA ) RIKAGAKU KENKYUSHO
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                                                                                                                                                                                                                                                                    Haemophilus influenzae strain Rd. The invention relates to a computer readable medium (CRM) having recorded upon it the complete H.influenzae nucleotide sequence (I), a representative fragment of (I) or a nucleotide sequence at least 99% identical to (I). By providing the full-length genomic sequence, in a computer readable form, it is possible to identify commercially important nucleic acid fragments and expression modulating fragments (EMRs) of the Haemophilus genome. The EMRs can be used to regulate the expression of a nucleic acid molecule. Vectors and altered organisms comprising the predicted ORPS can be used to produce any of the polypeptide fragments of the H. influenzae Rd genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CysAlaArgAspLysAsnIleProIleArgIleGlyValAsnAlaGlySerLeuGluLys 143
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                                                                                                                                                                                                                                                                                                                                                                                                                                      Seguence 1830121 BP; 567399 A; 350615 C; 347389 G; 564036 T; 682 other;
                                                                                                                                                                                                                                                        genome sequence of the bacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     390972 CAGCCAACTATTAAGCGTCGTGAATCGACAAAAATTTATGTGGGAAATGTACCAATTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTAGCAGATATTCATTTCGACTATCGTATCGCGTTAAAAGTCGCAGAATATGGAGTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATTTGCAAGAAAATATGGCGAACCAACGCCAGAAGCCTTGTTAGAATCCGCATTGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CysLeuArgIleAsnProGlyAsnIleGlyAsnGluGluArgIleArgMetValValAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProThrMetAspAlaAlaGluAlaPheLysLeuIleLysGlnGlnValAsnValProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValAlaAspIleHisPheAspTyrArgIleAlaLeuLysValAlaGluTyrGlyValAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGTGCGCGAGACAAAATATTCCGATTCGTATTGGTGTAAATGCAGGCTCTTTAGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AspLeuGlnGluLysTyrGlyGluProThrProGlnAlaLeuLeuGluSerAlaMetArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlnAlaProIleGlnArgArgLysSerThrArgIleTyrValGlyAsnValProIleGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspGlyAlaProlleAlaValGlnSerMetThrAsnThrArgThrThrAspValGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrValAsnGlnIleLysAlaLeuGluArgValGlyAlaAspIleValArgValSerVal
                                                                                                                                                               Haemophilus influenzae Rd genome recorded on computer readable medium - useful for identifying commercially important nucleic acid fragments by homology searching
                                                                                                         White O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1830121
                                                                                                         Venter JC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                            Claim 1; Page 77.2-77.1091; 1291pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-921-992-50 (1-372) x AAT42063 (1-1830121)
                                                                                                         Smith HO,
                                                                                                                                                                                                                                                        This sequence represents the complete
Haemophilus influenzae strain Rd. The
95US-0487429.
95US-0426787.
95US-0476102.
                                                              HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.6e-152
1603.50
93.66%
88.15%
85.93%
                                                                                                        Fleischmann RD,
                                                                          UNIV JOHNS HOPKINS
                                                                                                                                     WPI; 1996-485782/48.
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cal Similarity:
 07-JUN-1995;
                  21-APR-1995;
07-JUN-1995;
                                                                                                        Adams MD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        104
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GTGGTTGACTGTGCGCGCGATAAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCG

361

GCCATGCGTCATGTTGATCATCTCGATCGCCTGAACTTCGATCCAGTCCAGCGTG

AlaMetArgHisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSerVal

cregadadadercrecadedadaderaregedadecedecedecerrecregadrer

421

141

481 181 541

161

LysAlaSerAspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLysGlnIleAsp

GlnProLeuHisLeuGlyIleThrGluAlaGlyGlyAlaArgSerGlyAlaValLysSer

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                                                                                                                                                                                                                                                                                      The invention relates to gcpE nucleic acid molecule, an essential gene of methyl-D-erythritol phosphate (MEP) pathway) that encodes rice, Arabidopsis thaliana or Escherichia coll GCPE protein. gcpE is useful. Cor producing a transgenic plant such as Brassica campestris, B. napus, canola, castor bean, coconut, cotton, crambe, linseed, maize, mustard, oil palm, peanut, rapeseed, rice, safflower, sesame, soybean, sunflower, oil palm, peanut, rapeseed, rice, safflower, sesame, soybean, sunflower, crypression of GCPE protein in organisms increases the level of corpherol substrate such as isopentyl diphosphate and dimethylallyl diphosphate biosynthesis. Transgenic organisms overexpression GCPE protein in transgenic food and feed sources. Overexpression of GCPE protein in transgenic plant may provide tolerance to stresses of GCPE protein in transgenic plant may provide tolerance to stresses of GCPE protein in transgenic plant may provide tolerance to stresses of GCPE protein in transgenic plant may brovide tolerance to stresses the same species, and to obtain nucleic acid homologues. GCPE is also transformation or transfection. GCPE an also act as markers capable of transformation or transfection. GCPE an also act as markers capable of detecting polymorphisms such as single nucleotide polymorphisms (SNPs).
                                                                                                                                                                         gcpE nucleic acid which is an essential gene of the methyl-D-erythritol phosphate pathway, encoding a fully defined GCPE protein which is useful for increasing levels of tocopherol substrates in plants
                                                           Ξ
                                                           Seeman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the protein. The present sequence is Escherichia coli gcpE gene
                                                           ΣÌ
                                                           Rohmer
                                                       Rodriguez-concepcion M,
                                                                                                                                                                                                                                                           3; Page 117-119; 155pp; English
                  MONS ) MONSANTO TECHNOLOGY LLC.
                                                                         Venkatesh TV,
                                                         Campos N,
                                                                                                                2002-227151/28
                                                                                                                                    P-PSDB; AAE19653
                                                                             Valentin HE,
                                                       Boronat A,
                                                                                                                                                                                                                                                           Claim
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720

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CAGCCGTTGCATCTGGGGATCACCGAAGCCGGTGGTGGTGCCGCAGCGGGGCAGTAAAATCC

601 221 661

201

GCCATTGGTTTAGGTCTGCTGTCTGTAGGCATCGGCGACACGCTGCGTATCGCTG

AlaileGlyLeuGlyLeuLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeu

220

Sequence 1119 BP; 272 A; 279 C; 317 G; 251 T; 0 other Length:
Matches:
Conservative:
Mismatches:
Indels: 7.12e-184 1866.00 100.00% 100.00% Percent Similarity: Best Local Similarity: Alignment Scores: Pred. No.: Query | DB:

CCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACAGAC, 120 GTATCCGTACCGACGATGGACGCGGCAGAGCGTTCAAACTCATCAAACAGCAGGTTAAC 240 ValProLeuValAlaAspileHisPheAspTyrArgileAlaLeuLysValAlaGluTyr 100 241 GTGCCGCTGGTGGCTGACATCCACTTCGACTATCGCATTGCGCTGAAAGTAGCGGAAATAC 300 GCCGTCGATTGTCTGCGTATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATG 360 121 ValValAspCysAlaArgAspLysAsnIleProIleArgIleGlyValAsnAlaGlySer 140 ValSerValProThrMetAspAlaAlaGluAlaPheLysLeuIleLysGlnGlnValAsn 80 ProlleGlyAspGlyAlaProlleAlaValGlnSerMetThrAsnThrArgThrThrAsp GlyValAspCysLeuArgIleAsnProGlyAsnIleGlyAsnGluGluArgIleArgMet ValGluAlaThrValAsnGlnIleLysAlaLeuGluArgValGlyAlaAspIleValArg 121 GICGAAGCAACGGICAAICAAAICAAGGCGCIGGAACGCGIIGGCGCIGAIAICGICCGI 1119 372 0 0 0 (1-1119)Gaps: US-09-921-992-50 (1-372) x AAD31203 21 61 41 61 181 301 81 101 ò 셤 ò g ò 셤 ò g ò g ò 8 8

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ò	241	AlaAlaAspProValGluGluIleLysValGlyPheAspIleLeuLysSerLeuArgIle 260
qq	721	GCGCCCGATCCGGTCGAAGAGATCAAAGTCGGTTTTCGATATTTTGAAATCGCTGCGTATC 780
ò	261	ArgSerArgGlyIleAsnPheIleAlaCysProThrCysSerArgGlnGluPheAspVal 280
qq	781	CGTTCGCGAGGGATCAACTTCATCGCCTGCCCGACCTGTTCGCGTCAGGAATTTGATGTT 840
ò	281	IleGlyThrValAsnAlaLeuGluGlnArgLeuGluAspIleIleThrProMetAspVal 300
Q	841	ATCGGTACGGTTAACGCGCTGGAGCAACGCCTGGAAGATATCATCATCACCCCGATGGACGTT 900
ò	301	SerIleIleGlyCysValValAsnGlyProGlyGluAlaLeuValSerThrLeuGlyVal 320
В	901	TCGATTATCGGCTGCGTGGATGAATGGCCCAGGTGAGGCGCTGGTTTCTACACTCGGCGTC 960
ò	321	ThrGlyGlyAsnLysLysSerGlyLeuTyrGluAspGlyValArgLysAspArgLeuAsp 340
g	1961	ACCGGCGCCAACAAGAAAAGCGGCCTCTATGAAGATGGCGTGCGT
ò	341	AsnasnaspwetIleAspGlnLeuGlualaArgIleArgAlaLysAlaSerGlnLeuAsp 360
qq	1021	AACAACGATATGATCGACCAGCTGGAAGCACGCATTCGTGCGAAAGCCAGTCAGCTGGAC 1080
ò	361	GlublaArgArg1leAspValGlnGlnValGluLye 372
q	1081	GAAGCGCGTCGAATTGACGTTCAGCAGGTTGAAAA 1116
RESU AAT4 ID	RESULT 5 AAT42063 ID AAT42063	standard; DNA; 1830121 BP.
1 1 1 1 1 1 1 1	AAT42063;	
i i i	14-SEP-19	99 (first entry)
in X	Haemophilus	us influenzae complete genome sequence.
₹	Genome; b	
K K	expression organism;	n modulating fragment; regulation; open reading frame; ORF; ds.
X S	Haemophil	Haemophilus influenzae.
{ Z }	WO9633276	-A1.
₹ B \$	24-0CT-1996	
Ϋ́	22-APR-1996	16, 96WO-US05320.

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This invention describes a novel method for incorporating gcpE and yfgB genes into viruses and cells for increasing isopranoid content and identifying e.g. antimicrobial agents, comprises using DNA sequences (I) from the gcpE or yfgB genes of bacteria or parasites or DNA sequences (II) which hybridize to the specified genes or encode a plastid protein with the same biological activity as those encoded by the genes. The invention also describes (I) plant cells containing (I) or (II); (2) transformed plant cells, and transgenic plants regenerated from them, that contain (I) or (II); (3) determining the enzymatic activity of a gcpE protein; or (4) screening compounds (A) that have antimycricic artiparasitic or antiviral activity in humans or animals or antiviral, antiparasitic, fungicidal or herbicidal activity in plants. (I) and (II) or increase the isoprenoid levels in viruses and cells; (ii) for determining the enzymatic activity of gcpE and yfgB proteins; and (iii) to identify compounds that inhibit activity of gcpE, i.e. potential antibacterial, antimycotic, antiparasitic or antiviral agents for use in humans or animals, or antiviral, antiparasitic, fungicidal
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTATCCGTACCGACGATGGACGCGCAGAAGCGTTCAAACTCATCAAACAGCAGGTTAAC
                                                                rating gcpE and yfgB genes into viruses and cells, for ing isoprenoid content and identifying e.g. antimicrobial comprises using DNA sequences from bacteria or parasites
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372
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Mismatches:
Indels:
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Matches:
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                                                                                                                                     Claim 3; Page 13-15; 36pp; German
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                           LysAlaSerAspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLysGlnIleAsp
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  121 CTGGAAAAGATCTGCAAGAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCT
                                         161 AlaMetArgHisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSerVal
                                                                  481 GCCATGCGTCATGTTGATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTG
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                                      Identifying antagonists of the expression of gene encoding bacterial growth polypeptide useful for treating bacterial infections or diseases, by evaluating transcription of the gene in the presence of
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CTGGAAAAAGATCTGCAAGAAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCT
                            AlaMetArgHisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSerVal
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infection; therapy; antagonist; surrogate marker; ds.
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OM protein - nucleic search, using frame_plus_p2n model
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-LIST=45 -DOCALIGN=200 -THR SCORE=pct -THR MAX=100 -THR MIN=0 -ALIGN=15
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Listing first 45 summaries

N Geneseq 19Jun03:\*

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| SIDS1/gcgdata/geneseq/geneseqn-emb1/NA2001B.DAT:\*
| SIDS1/gcgdata/geneseq/geneseqn-emb1/NA2002.DAT:\*
| SIDS1/gcgdata/geneseq/geneseqn-emb1/NA2002.DAT:\* Jatabase :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed,

and is derived by analysis of the total score distribution.

SUMMARIES

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so	Esc	scherichia	a coli.				

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Search completed: November 23, 2003, 15:53:54 Job time : 2756 secs

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hote="Vector: pBluescriptII SK-; Site_1: EcoRI; Site_2:
Xho1; The cDNA library was constructed from cells cultured
in a medium with bubbling air containing 5% carbon
                                                                                                                                                          AV641368 377 bp mRNA linear EST 15-DEC-2000 840641368 Chlamydomonas reinhardtii 5% CO2 Chlamydomonas reinhardtii CDNA clone HCL032d09_r 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
Location/Qualifiers
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         102 redecaacerecededecacecaceaceacearecerreacearecareacearecaces 161
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            282 AGCAGCTGTTCAAGGACAAGTACGACGTGCCCCTGGTGGCCGACATCCAGCCCA 341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---AACTCATCAACAGCAGGTTAACGTGCCGCTGGTGGCTGACATCCACTTCGACTATC 274
330 CCACGGCGGCCATGATGGTGGCGGACGCCTTCGAGAAGATCCGTGTGAACCCCGGCAACT 389
                                                                                                                                                                                                                                                                                    Chlamydomonas reinhardtii
Eukaryota, Viridiplantae, Chlorophyta, Chlorophyceae, Volvocales,
Chlamydomonadaceae, Chlamydomonas.
                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 377)
Asamizu, E., Miura, K., Kucho, K., Inoue, Y., Fukuzawa, H., Ohyama, K.,
Nakamura, Y. and Tabata, S.
                                                                                                                                                                                                                                                                                                                                                                                       Generation of expressed sequence tags from low-CO2 and high-CO2 adapted cells of Chlamydomonas reinhardtii DNA Res. 7 (5), 305-307 (2000) 20539644
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Pred. No. 8.7e.08;
0; Mismatches 105; Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Chlamydomonas reinhardtii"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Erika Asamizu
The First Laboratory for Plant Gene Research
Kazusa DNA Research Institute
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/clone="HCL032d09_r"
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                                                                                                                                                                                                                                                                       Chlamydomonas reinhardtii
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                                   335 TCGGTAATG 343
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RESULT 15

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/wol type="mRNA"
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/do xref="teaxon:4558"
/folone="Sal of A002"
/lab host="DH10B-T1 phage-resistant E. coli"
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/note="Vector: pME18S-FL3; Site_1: XhoI; The
library was prepared from poly4+ RNA from seedlings grown
in hydroponic culture. At 8 days of age, medium was
supplemented with 1 mM salicylic acid (SA). Roots and
shoots were harvested affer 27 and 72 hr and material from
both time points was combined prior to RNA isolation.
Double-stranded cDNA was cloned unidirectionally into
different DraIII sites of the pME18S-FL3 vector (5-prime
DraIII site is CACTGTGTG; 3-prime DraIII site is CACCATGTG
). XhoI excises the cDNA insert."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Enail: mmpratt@uga.edu
Library constructed by Dr. Yutaka Suzuki and Dr. Sumio Sugano in
Library constructed by Dr. Yutaka Suzuki and Dr. Sumio Sugano in
the Human Genome Center, University of Tokyo Institute of Medical
Science; plant material and RNA prepared at Texas A & W University,
sequencing done in the Laboratory for Genomics and Bioinformatics,
University of Georgia. Sequence ends have been trimmed to exclude
vector and regions below Phred quality 16. Three-prime sequences
are presented as their reverse complement and have been trimmed to
exclude polya.
Seq primer: Sugs (CTTCTGCTCTAAAAGCTGCG).

Location/Qualifiers

1. 688
CD424926
SAI_9_D05.gI_A002 Salicylic acid-treated seedlings Sorghum bicolor CDNA Clone SAI_9_D05_A002 5', mRNA sequence.
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                                                                                                                                                                                                                                                                                                            Eukaryoca; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACCAD
clade; Panicoideae; Andropogoneae; Sorghum.
                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 688)

Cordonnier-Pratt, M.-M., Wentzel, V., Suzuki, Y., Sugano, S., Klein, R.R., Liang, C., Sun, F., Sullivan, R., Shah, M., Salzman, R., Chua, N., Gonzalez, M., Lane, S., Miller, V., Nanda, P., Olaseinde, O., Eastman, A. and Pratt, L.H.

An EST database from Sorghum: salicylic acid-treated seedlings
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Other ESTS: SA1 9 DOS.bl A002
Contact: Cordonnier-PratE MM
Laboractory for Genomics and Bioinformatics
The University of Georgia, Department of Plant Biology
The University of Reorgia, 2502, Athens, GA 30602-7271,
Tel: 706 542 1860
Fax: 706 583 0210
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.larity 55.4%; Pred. No. 2e-06;
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Sorghum bicolor
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/db_xref="caxon:3055"
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XhoI; The cDNA library was constructed_from cells cultured
in a carbon stress acclimatized condition in which carbon
dixide concentration in the bubbling gas was changed from
5% to 0.04%"
149 c 142 g 68 t
                                                                                                                                                                                                                                                                                                   AV629427
AV629427 Chlamydomonas reinhardtii 5% to 0.04% CO2 Chlamydomonas reinhardtii 5% to mRNA sequence.
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Kazusa DNA Research Institute
Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizu@azusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
Location/Qualifiers
                                                             330 CGGTGGCCATGATGGTGGCGG---ACGCCTTCGAGAAGATCCGTGTGAACCCCGGCAACT 386
                            275 GCATTGCGCTGAAAGTAGCGGAATACGGCGTCGATTGTCTGCGTATTAACCCTGGCAATA 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      50 TTGGGAATGTGCCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGC 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     110 GTACGACGACGTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTG 169
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chlamydomonas reinhardtii
Eukaryota, Viridiplantae, Chlorophyta, Chlorophyceae, Volvocales,
Chlamydomonadaceae, Chlamydomonas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 467)
Asamizu, E., Miura, K., Kucho, K., Inoue, Y., Fukuzawa, H., Ohyama, K., Nakamizu, E., Miura, Y. and Tabata, S.
Generation of expressed sequence tags from low-CO2 and high-CO2 adapted cells of Chlamydomonas reinhardtii
DNA Res. 7 (5), 305-307 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    213 ACATCGTCCGCATCACAGTGCAGGGCAAGAGGAGGCTGAGGCGTGCATGAAGATTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218 ---AACTCATCAAACAGCAGGTTAACGTGCGGCTGGGTGGCTGACATCCACTTCGACTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      153 ACACCCGCAATGTGCAGCTGACCGTGGACCAGGTGAAGAAGTGCGCGGACGCCGGCGG
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    467
    organism="Chlamydomonas reinhardtii"

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/strain="C9"
                                                                                                                                                                                                                                                                                                                                                                                                   AV629427.1 GI:10792061
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                                                                                                                           TCGGTAATG 343
                                                                                                                                                                          387 TCGCTGACG
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                                                                                                                                                                                                                                                                                                                        DEFINITION
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PUBMED
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AV629427
LOCUS
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KEYWORDS
SOURCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db xref="taxon:3055"
/clone="LicLt016e04 r"
/clone="Vector: pBluescriptII SK-; Site 1: EcoRI; Site 2:
Xho1; The cDNA library was constructed from cells cultured in a carbon stress acclimatized condition in which carbon dioxide concentration in the bubbling gas was changed from 5% to 0.04%"
a 177 c 166 g 81 t
                                                                                                                                                                                                                                                                                                                                                                         AV626844 Chlamydomonas reinhardtii 5% to 0.04% CO2 Chlamydomonas reinhardtii 5% to 0.04% CO2 Chlamydomonas reinhardtii cDNA clone LCL016e04_r 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The First Laboratory for Plant Gene Research
Kazusa DNA Research Institute
Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
Location/Qualifiers
----AACTCATCAAACAGCAGGTTAACGTGCCGCTGGTGGCTGACATCCACTTCGACTATC 274
                         277 AGCAGCTGTTCAAGGACAAGTACGACGTGCCCCTGGTGGCCGACATCCACTTCCAGCCCA 336
                                                                                               275 GCATTGCGCTGAAAGTAGCGGAATACGGCGTCGATTGTCTGCGTATTAACCCTGGCAATA 334
                                                                                                                                 337 CGGTGGCCATGATGGTGGCGG---ACGCCTTCGAGAAGATCCGTGTGAACCCCGGCAACT 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGGGAATGTGCCGATTGCCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGC 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        169
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        270 AGCAGCTGTTCAAGGACAAGTACGACGTGCCCTGGTGGCCGACATCCACTTCCAGCCCA 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Asamizu, E., Miura, K., Kucho, K., Inoue, Y., Fukuzawa, H., Ohyama, K., Nakamura, Y. and Tabata, S. Generation of expressed sequence tags from low-CO2 and high-CO2 adspted cells of Chlamydomonas reinhardtii
DNA Res. 7 (5), 305-307 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chlamydomonas reinhardtii
kukaryota, Viridiplantee; Chlorophyta; Chlorophyceae; Volvocales;
Chlamydomonadaceae; Chlamydomonas.
1 (bases 1 to 545)
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/mol_type="mRNA"
/strain="C9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 67.4; DB 9;
Pred. No. 2.3e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chlamydomonas reinhardtii
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Contact: Erika Asamizu
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56.6%;
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                                                                                                                                                                                                 335 TCGGTAATG 343
                                                                                                                                                                                                                                               394 rccrcacc 402
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VERSION
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db_xref="taxon:3055"

/db_xref="taxon:3055"

/clone=lib="chamydomonas reinhardtii 5% CO2"

/note="Vector: pBluescriptII SK-; Site_i: EcoRI; Site_2:

/note="Vector: pBluescriptII SK-; Site_ii: EcoRI; Site_2:

/knoi; The cDNA library was constructed from cells cultured

in a medium with bubbling air containing 5% carbon

dioxide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        47644087 Chlamydomonas reinhardtii 5% CO2 Chlamydomonas reinhardtii 5% CO2 Chlamydomonas reinhardtii AV644087 AV644087
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Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
Location/Qualifiers
1. :531
/organism="Chlamydomonas reinhardtii"
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                                                                                                                                                                                                                                                                                              346 CGGTGGCCATGATGGTGGCGG---ACGCCTTCGAGAAGATCCGTGTGAACCCCGGCAACT 402
                                                                                                                                                                                                                                                             275 GCATTGCGCTGAAAGTAGCGGAATACGGCGTCGATTGTCTGCGTATTAACCCTGGCAATA 334
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Chlamydomonadaceae; Chlamydomonas.
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Asamizu, E., Miura, K., Kucho, K., Inoue, Y., Fukuzawa, H., Ohyama, K.
Nakamura, Y. and Tabata, S.
Generation of expressed sequence tags from low-CO2 and high-CO2
adapted cells of Chlamydomonas reinhardtii
DNA Res. 7 (5), 305-307 (2000)
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                                                               226 Acarcercecarcacaerecaegecaaeaaeaeeecreaeecerececarcacece
                                                                                                                                 218 ---AACTCATCAAACAGCAGGTTAACGTGCCGCTGGTGGCTGACATCCACTTCGACTATC
                                                                                                                                                               286 AGCAGCTGTTCAAGGACAAGTACGACGTGCCCCTGGTGGCCGACATCCACTTCCAGCCCA
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ATATICGTCCGTGTATCCGTACCGACGATGGACGCGGCAGAGCGTTCA
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Kazusa DNA Research Institute
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/strain="C9"
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AV628026 Chlamydomonas reinhardtii 5% to 0.04% CO2 Chlamydomonas
AV628026 Chlamydomonas LCL035f07_r 5', mRNA sequence.
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The First Laboratory for Plant Gene Research
The First Laboratory for Plant Gene Research
The 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/
Location/Qualifiers
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Chlamydomonas reinhardtii
Eukaryota; Viridiplantae; Chlorophyta; Chlorophyceae; Volvocales;
Chlamydomonadaceae; Chlamydomonas.
1 (bases 1 to 531)
Asamizu,E., Miura,K., Kucho,K., Inoue,Y., Fukuzawa,H., Ohyama,K.,
Nakamura,Y. and Tabata,S.
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Pred. No. 2.3e-09;
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/strain="C9"
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Best Local Similarity 56.6%;
Matches 175; Conservative
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Chlamydomonas reinhardtii
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/clone="LCL015e03 r"
/clone="LcL01b=Clods r"
/clone lib="Chlamydomonas reinhardtii 5% to 0.04% CO2"
/clone lib="Chlamydomonas reinhardtii 5% to 0.04% CO2"
/note="Vector: pBluescriptII SK-; Site_I: BcoRI; Site_2:
XhoI; The cDNA library was constructed from cells cultured
in a carbon stress acclimatized condition in which carbon
diaxide concentration in the bubbling gas was changed from
5% to 0.04%"
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The First Laboratory for Plant Gene Research
Tkazusa DNA Research Institute
Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
10.cation/Qualifiers
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Generation of expressed sequence tags from low-CO2 and high-CO2 adapted cells of Chlamydomonas reinhardtii
DNA Res. 7 (5), 305-307 (2000)
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Chlamydomonadaceae; Chlamydomonas.
1 (bases 1 to 502)
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                                    TTGGGAATGTGCCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGC
                                                                                                             GTACGACAGACGTCGAAGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTG
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   Mismatches 116; Indels
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/mol type="mRNA"
/strain="C9"
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Pred. No. 2.2e-09;
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Chlamydomonas reinhardtii
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56.6%;
   Conservative
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AV626792
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ORIGIN
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50 TIGGGAATGTGCCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGC 109

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/mol type="mmna"/
/strain="c9"
/barain="c9"
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/clone="Hctb08pb10_r"
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/note="Vector: pBluescriptII SK ; Site_1: EcoRI; Site_2:
/note="Vector: pBluescriptII SK ; Site_1: a medium with bubbling air containing 5% carbon
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Kazuas DNA Research institute
Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
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107 TCGGCAAGGTGCCGGTGGGCAGCCACCGCATCGCCCTTCAGACCATGACCACCACGG 166
                                                                                                                                                                                                                                                                                                                  226
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1 (base) to 512)
Asamizu, E., Mura, K., Kucho, K., Inoue, Y., Fukuzawa, H., Ohyama, K., Nakamura, Y. and Tabata, S.
Generation of expressed sequence tags from low-CO2 and high-CO2 adapted cells of Chlamydomonas reinhardtii

DNA Res. 7 (5), 305-307 (2000)
                                                                                                                                                                                                                                                                                                          167 ACACCCGCAAnGIGCAGCIGACCGIGGACCAGGIGAAGAAGAAGTGCGCGGACGCCGGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           170 ATATOGTCCGTGTATCCGTACCGACGATGGACGCGCAGAAGCGTTCA------
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Pred. No. 2.2e-09;
0; Mismatches 116; Indels 18;

    1. .512
/organism="Chlamydomonas reinhardtii"

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Gaps

217 276

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/db_xref="taxon:3055"
/clone="Httb660b04"...
/clone=lib="Chlamydomonas reinhardtii 5% CO2"
/note="Vector: pBluescriptII SK-; Site_1: EcoRI; Site_2:
/note="vector: pBluescriptII SK-; Site_1: EcoRI; Site_2: Arbor in a medium with bubbling air containing 5% carbon dioxide"
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Chlamydomonas reinhardtii
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Kazusa DNA Research Institute
Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
Location/Qualifiers
                                                                                                                                                      110 GTACGACAGACGTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTG 169
                                                                                                                                                                                                                                                                                                                                                                                                             ---AACTCATCAAACAGCAGGTTAACGTGCCGCTGGTGGCTGACATCCACTTCGACTATC 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          275 GCATTGCGCTGAAAGTAGCGGAATACGGCGTCGATTGTCTGCGTATTAACCCTGGCAATA 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     337 CGGTGGCCATGATGGTGGCGG---ACGCCTTCGAGAAGATCCGTGTGAACCCCGGCAACT 393
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Asamizu, E., Mura, K., Kucho, K., Inoue, Y., Fukuzawa, H., Ohyama, K., Nakamura, Y. and Tabata, S. Generation of expressed sequence tags from low-CO2 and high-CO2 adapted cells of Chlamydomonas reinhardtii

DNA Res. 7 (5), 305-307 (2000)
                                                                                                                                                                                                                                                                                                 170 ATATCGTCCGTGTATCCGTACCGACGATGGACGCGCGCGGAGAGCGTTCA-------
                                                                                                                                                                                                                                                                                                                                            217 ACATCGTCCGCATCACAGTGCAGGGCAAGAAGGAGGCGTGAGGTGCATGAAGATTCGCG
                                                                                                                         TIGGGAATGTGCCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACGC
                                                                                18;
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                                        Length 448;
                                                                                .0; Mismatches 117; Indels
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/mol_type="mRNA"
/strain="C9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AV642898 Chlamydomonas reinhardtii 5% CO2 cDNA clone HCL060b04_r 5', mRNA sequence. AV642898.1 GI:10786226
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Pred. No. 2.1e-09;
                                   6.1%; Score 67.8; DB 9; 56.6%; Pred. No. 1.6e-09;
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                                        Query Match
Best Local 8
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ORIGIN
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AV642898
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AV644003 AABA TINEAR ST 15-DEC-2000 AV644003 Chlamydomonas reinhardtii 5% CO2 Chlamydomonas reinhardtii CDNA clone HCL080a02_r 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               973 AAGAAAAGGGGCCTCTATGAAGATGGCGTGCGCAAAGACCGTCTGGACAACAACAACATATG 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                 752 AACGAGCTGGAAGGGCGCCTGGAGGACCTGCTGATGCCGATGGACGTGGCCGTGATCGGT 693
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Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       853 AACGCGCTGGAGCAACGCCTGGAAGATATCATCACCCCGATGGACGTTTCGATTATCGGC 912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            913 TGCGTGGTGAATGGCCCAGGTGAGGCGCTGGTTTCTACACTCGGCGTCACCGGCGGCAAC 972
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Samalau, E., Miura,K., Kucho, K., Inoue,Y., Fukuzawa,H., Ohyama,K.,
Nakamura,Y. and Tabata, E., Generation of expressed sequence tags from low-CO2 and high-CO2
adapted cells of Chlamydomonas reinhardtii
DNA Res. 7 (5), 305-307 (2000)
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Eukaryota, Viridiplantae, Chlorophyta, Chlorophyceae, Volvocales,
Chlamydomonadaceae, Chlamydomonas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          632 CCGAA---CCTGGTGTATATCGACGGCAAGCCGTCGCAGAAACTGACCAACGACAACCTG
                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                          /organism="Pseudomonas aeruginosa"
/mol_type="genomic DNA"
/strain="0-164"
/db_xref="taxon:287"
/db_xref="taxon:287"
/clone="pacs2-164"
/clone="pacs2-164"
/note="finial isolate 2-164 Whole genomic shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1033 ATCGACCAGCTGGAAGCACGCATTCGTGCGAAAGCCAGTCAGCTGGACGAAGC 1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3,
                                                                                                                                                                                                                                                                                                   29; Length 1268;
                                                                                                                                                                                                                                                                                                   Score 68.2; DB 29; Length
Pred. No. 2e-09;
0; Mismatches 93; Indels
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/mol_type="mRNA"
/strain="C9"
/db_xref="taxon:3055"
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Kazusa DNA Research Institute
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Best Local Similarity 58.8%;
Matches 137; Conservative
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a 386 c
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Psedomonas aeruginosa library
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Bacteria; Proteobacteria; Gammaproteobacteria; Pseudomonadales;
Pseudomonadaceae; Pseudomonas.
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Spencer, D.H., Raymond, C.K., Smith, E.E., Sims, E.E., Hastings, M., Burns, J.L., Kaul, R. and Olsen, M.V.
Whole-Genome-Sequence variation among multiple isolates of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTTATCGTTTGCTGGCAAAACAGATCGATCAGCCGTTGCATCTGGGGGATCACCGAAGCCG
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                                                                                                                                                Contact: Hogenhout SA
Department of Entomology
The Ohio State University-OARDC
The Ohio State University-OARDC
Tel: 330 263 3730
Fax: 330 263 3686
Email: hogenhout.l@osu.edu
Class: Hodenhout.l@osu.edu
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
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                                                                                                                       strain M2
               Spiroplasma kunkelii
Spiroplasma kunkelii
Bacteria; Firmicutes; Mollicutes; Entomoplasmatales;
Spiroplasmataceae; Spiroplasma.
1 (bases 1 to 720)
                                                                                                                                                                                                                                                                                                                                                                                                                              others
                                                                                                                Genomic sequences from Spiroplasma kunkelii
Unpublished
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                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:47834"
/clone="pH_05.x"
/clone_lib="Spiroplasma kunkelii
96 c 132 g 233 t
                                                                                                                                                                                                                                                                                                                      /organism="Spiroplasma kunkelii"
/mol_type="genomic DNA"
/strain="M2"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       832 GTTGTTGGCACGTT--GGCCAAATCCGCCGCGCGAAAATGCGCGCGCGAACATGGTGCGG
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pacs2-164_970.s1 pacs2-164 Pseudomonas aeruginosa genomic clone
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Pseudomonas aeruginosa
Bacteria; Proteobacteria; Gammaproteobacteria; Pseudomonadales;
Bacteria; Proteobacteria; Gammaproteobacteria; Pseudomonadales;
Pseudomonadacea; Pseudomonas.
1 (baess 1 to 1268)
Spencer, D.H., Raymond, C.K., Smith, E.E., Sims, E.E., Hastings, M.,
Burns, J.L., Kaul, R. and Olsen, M.V.
Whole-Genome-Sequence variation among multiple isolates of
Psedomonas aeruginosa library
J. Bacteriol., (2002) In press
Contact: Chris K. Raymond
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 ATGCATAACCAGGCTCCAATTCAACGTAGAAATCAACACGTATTTACGTTGGGAATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:287"
/clone="msh2_589"
/clone="lib="msh2"
/note="Environmental isolate. Whole genomic shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6.7%; Score 74.8; DB 29; Length 1127; 58.5%; Pred. No. 1.8e-11; ive 0; Mismatches 114; Indels 4;
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                                                                                                                                                                                                                                                                                                                       organism="Pseudomonas aeruginosa"
                                                                                                                   USA
                                                     Genome Center
University of Washington
Box 352145, Seattle, WA 98105-2145, US
Tel: 2062216954
Fax: 2066857244
Email: craymond@u.washington.edu
Class: shotgun.
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Box 352145, Seattle, WA 98105-2145,
Tel: 2062216954

Exa: 2066857244

Email: craymond@u.washington.edu
                                                                                                                                                                                                                                                                                                                                         /mol_type="genomic DNA"
/strain="MSH"
J. Bacteriol., (2002) In press
Contact: Chris K. Raymond
                                                                                                                                                                                                                                                            Location/Qualifiers
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Matches 166; Conservative
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BH235010 720 bp DNA linear GSS 01-JAN-2002 PH 05.x Spiroplasma kunkelii H Spiroplasma kunkelii genomic clone PH 05.x, genomic survey sequence.
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/note="Vector: pBRcDNASfiAB; The library was constructed
from 10 different sources of RNA from a single genotype.
Separate cDNAs were generated using primers that
incorporated unique 5' and 3' tags to distinguish each
source of RNA. cDNAs were then pooled, size-fractionated
directionally cloned into a custom medium-copy vector and
transformations made with four size classes to minimize
size bias. Details of each source of RNA and library
construction can be obtained at http://cgpdb.ucdavis.edu/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               429 AGATCTGCAAGAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCTGCCATGCG 488
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Lin,H., van Damme,M., Lavelle,D., Chevalier,P., Ziegle,J., Ellis,P., Kolkman,J., Slabaugh,M.S., Livingston,K., Zhou,Y., Lai,Z., Church,S., Jackson,L. and Bradford,K.
Lettuce and Sunflower ESTs from the Compositae Genome Project
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                                                                                                                                                                                                                                                                                                                                              Asmundson Hall, UCD, Davis, CA 95616, USA
Tel: 1-(530)-742-1742
Fax: 1-(530)-752-9659
Email: akozik@atgc.org [michelmore@vegmail.ucdavis.edu]
singleton, see http://ogpdb.ucdavis.edu/ for details.
Plate: QGG37 row: N column: 12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 351;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels,
                                                                                                                                                                                                                                    Contact: Alexander Kozik [R.W.Michelmore]
Department of Vegetable Crops, R.W.Michelmore
University of California at Davis (UCD)
University of California, CA 95616, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7.3%; Score 81.8; DB 13;
53.1%; Pred. No. 6.7e-14;
iive 0; Mismatches 153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Lactuca'sativa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCGGTCGAAGAGATCAAAGTCGGTT 754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /mol_type="mRNA"
/cultivar="L.serriola"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:4236"
/clone="QGG37N12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               32 recreredeseseseses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'lab_host="E.coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            115 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TAG_SEQ=Not found"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BH235010.1 GI:18030478
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Matches 173; Conserv
                                                                                                                                                                                                     Unpublished
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VERSION
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COMMENT
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BH235010
LOCUS
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                                                                                                                                 TITLE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781 CGTTCGCGAGGGATCAACTTCATCGCCTGCCCGACCTGTTCGCGTCAGGAATTTGAŢGTT 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           524 CGCTCCCGTGGCATCAACATCATCGCCTGCCCGAGCTGTTCGCGGCAGAACTTCGACGTG 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGCCGATCCGGTCGAAGAGATCAAAGTCGGTTTCGATATTTTGAAATCGCTGCGTATC 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  841 ATCGGTACGGTTAACGCGCTGGAGCAACGCCTGGAAGATATCATCACTCCGATGGACGTT 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots,
asterids, campanulids, Asterales, Asteraceae, Cichorioideae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 GTGGTTGACTGTGCGCGCGATAAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCG 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGGAAAAAGATCTGCAAGAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCT 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              164 cragaaaaagaccracagaagaaaracgccaaccgaccccggaagccrccracrccaarcg 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCATGCGTCATGTTGATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTG 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  224 GCCATGCGCCACGTCGATCATCTCGACAAGCTGGACTTCCAGAACTTCAAGGTCAGGGTC 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAAGCGTCTGACGTCTTCCTCGCTGTTGAGTCTTATCGTTTGCTGGCAAAACAGATCGAT 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGCCGTTGCATCTGGGGATCACCGAAGCCGGTGGTGCGCGCAGCGGGGCAGTAAAATCC 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGCCCCTGCACCTAGGCATCACCGAGGCCGGCCTGCGCTCCGGCACGGTGAAGTCG 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCATTGGTTTAGGTCTGCTGCTGTCTGAAGGCATCGGCGACACGCTGCGCGTATCGCTG 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGTGGGGCTGGGCATGCTCCTGGCCCGAGGGAATCGGCGACACCATCCGGATTTCCCTG 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTGCCGATCCGGTCGAGGAGATCAAGGTCGGTTTCGACATCCTCAAGTCCCTGCACCTG 523
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1 (bases 1 to 351)
Kozik,A., Michelmore,R.W., Knapp,S., Matvienko,M., Rieseberg,L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  901 TCGATTATCGGCTGCGTGGTGAATGGCCCCAGGTGAGGCGCTGGTTTCTACACTCGGC 957
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                               /db_xref="taxon:287"
/clone="mmb12 4614"
/clone_lib="msh"
/note="Environmental isolate. Whole genomic shotgun
library."
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 1323;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches 166; Indels
                                                                aeruginosa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 319.4; DB 29;
Pred. No. 9.7e-87;
                                                                                                                                                                                                                                                                                                                                                      371 t
                                                                                           /mol_type="genomic DNA"
/strain="MSH"
                                  1. .1323
/organism="Pseudomonas
                                                                                                                                                                                                                                                                                                                                                      318 g
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QGG37N12, mRNA sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                            28.5%;
72.0%;
                                                                                                                                                                                                                                                                                                                                                      394 C
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lactuca sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
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BU004160/c
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VERSION
KEYWORDS
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Scoring table:

Searched:

Database :

Perfect score:

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Sequence:

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AV644003 AV644003

AV626792 AV642898

AV62692 AV642898

AV628026 AV628026

AV644087 AV628026

AV644087 AV62844

AV626844 AV628427

AV629427 AV629427

AV629427 AV629427

AV629427 AV629427

AV629427 AV629427

AV64925 SAL 9 D05

CD423530 SAL 23 D1

CD628414 OSITED039

CD628419 OSITED039

AV640429 AV640429

BG5225868 S3-47-1-2

AC570993 281PVD07

AV6404350 OSITEA030

BM32550 PICI 20 A

CD662234 OSJNEG068

BF962770 OV2-NNO04

BF962770 QV2-NNO04

BF962738 BS7428007

BG951332 BS7428007

B1934498 EST428007

B1934498 EST428007
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1 (basea | to 1323)
Spencer, D. H., Raymod, C. K., Smith, E. E., Sims, E. E., Hastings, M., Burns, J. L., Kaul, R. and Olsen, M.V.

Whole-Genome-Sequence variation among multiple isolates of Psedomonas aeruginosa library
J. Bacteriol., (2002) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   J. Bacceriol., (2002) In press
Contact: Chris K. Raymond
Genome Center
University of Washington
Box 352145, Seattle, WA 98105-2145, USA
Tel: 2062216954
Fax: 2066857244
Email: craymond@u.washington.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALIGNMENTS
                                                                                                                              AV629427
AV641168
CD443926
CD423530
CD620208
CB6208414
CB628414
CB628419
AI770308
AV640429
AW282425
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AW384429
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CB662233
CB662235
CB662235
CB662335
CB619369
BM323500
CD423350
CD423350
CB1933447
BI933447
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BQ975044
AU186794
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                                                                                                             AV626844
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Location/Qualifiers
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BZ575759.1 GI:27210820
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                                                                                                          November 23, 2003, 13:42:06; Search time 2752 Seconds (without alignments) 9882.525 Million cell updates/sec
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Job time : 372 secs

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The present sequence is the genome sequence of Listeria monocytogenes BEGD-e. This sequence and fragments of this sequence are useful for selecting probes and primers for detecting genes in L. monocytogenes and related organisms, and to study genetic polymorphisms and other genomes. Proteins (ABB47297-ABB50149) expressed from the present sequence are useful for raising specific antibodies, identification of L. monocytogenes and related organisms, and for biosynthesis and biodegradation, especially biosynthesis of Vitamin B12. This sequence and proteins encoded by it are also useful for selecting compounds that monocytogenes related diseases. In addition, this sequence and proteins encoded by it are useful in pharmaceutical and vaccines compositions for the treatment or prevention of infections by L. monocytogenes and related
GGTGAATGGCCCAGGTGAGGCGCTGGTTTCTACACTCGGCGTCACCGGCGCGAACAAGAA 977
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genomic sequence for Listeria monocytogenes, useful e.g. for treatment and prevention of Listeria and related bacterial infections, and related polypeptides
                              912 GGTCAACGGCCCTGGAGAAGCTCGCGAAGCCGATATCGGAATTGCTGGTTCAAACGGAGA
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                                                                                                                                                                                                                                                                                                              Listeria monocytogenes EGD-e genome sequence
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Sequence 2944528 BP; 914202 A; 563301 C; 555061 G; 911964 T; 0 other;

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Length 2944528;

Score 251.4; DB 24;

22.5%;

Query Match

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Note: The sequence data for this patent did not form part
of the printed specification, but was obtained in electronic fo
directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
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treatment and prevention of infection, also related polypeptides,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                          3596 AATTCTCGAAGATTTAGATTTTTATGATATCATTGTTTCTTTGAAAGCTTCTGATGTGAA 3655
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1016 GGTCAACGGTCCCGGAGAAGCTCGCGAAGCAGATATCGGAATTGCTGGTTCAAATGGAGA 4075
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                           258 CATCCACTTCGACTATCGCATTGCGCTGAAAGTAGCGGAATACGGCGTCGATTGTCTGCG 317
                                                                                                                     TATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATGGTGGTTGACTGTGCGCG 377
                                                                                                                                                                                                                 437
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Gaps

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22.5%; Score 251.4; DB 24; 53.5%; Pred No. 9.7e-63; live 0; Mismatches 456;

DB 24; Length 1107;

17 71 78 TCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACAGACGTCGAAGCAACGGTCAA 137

GGAATTAACTATCCAAAGCATGACTACTACAAAGACACATGATGTCGAAGCAACAGTAGC 138 TCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGTGTATCCGTACCGACGAT 132 AGAAATTCACCGATTAGAAGAAGCTGGTTGTCAGATTGTGCGAGTTGCTTGTCCTGATGA

12 AATATTTCGCGAAAACACTCGCCCAGTCCAAGTGGGTAATTTAACTATTGGTGGTAGTGA

18 AATTCAACGTAGAAATCAACACGTATTTACGTTGGGAATGTGCCGATTGGCGATGGTGC

131

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198 GGACGCGCCAGAAGCGTTCAAACTCATCAAACAGCAGGTTAACGTGCCGCTGGTGGCTGA

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317 311 371 437 497

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318 TATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATGGTGGTTGACTGTGCGCG 377
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192 ACGTECAGEGAATGETETTAGTGCCATEAAAAAAAAAATTEATATTEEGETTGTGGEAGA
                                                        CATCCACTTCGACTATCGCATTGCGCTGAAAGTAGCGGAATACGGCGTCGATTGTCTGCG
                                                                                                             252 TATTCATITIGATIACCGACTAGCACTITAAAGCTATTGATGCAGGTGTTGACAAATTCG
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Antibacterial; Listeria; food contamination; mutational analysis; infection; ds.

Listeria monocytogenes EGD

WO200228891-A2

11-APR-2002

Listeria monocytogenes EGD DNA sequence #90

(first entry)

29-AUG-2002

AB067966;

ABQ67966 standard; DNA; 1107

RESULT 13 ABQ67966

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infection; ds.
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  the printed
Note: The sequence data for this patent did not form part of the printer specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                     ATCAACAGACTCGCGGAAGCAGGATGTCAAATCGTCCGCGTCGCTGTCCTGATGAACGG
                                                                                                                                                                     CATCGTACAAAACGCGTCCCGTTAAAGTGGGACCTTTAACAATAAGGCGGCAATAACGAA
                                                                                                                                                                                              GCGGCAGAAGCGTTCAAACTCAAACAGCAGGTTAACGTGCCGCTGGTGGCTGACATC
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                                                                                                                                            CAACGTAGAAAATCAACACGTATTTACGTTGGGAATGTGCCGATTGGCGATGGTGCTCCC
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                                                                                        26.2%; Score 293.4; DB 24; Length 1083; 56.6%; Pred. No. 5.8e-75;
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                                                                                                                  0; Mismatches 416; Indels
                                                               Seguence 1083 BP; 314 A; 278 C; 265 G; 226 T; 0 other;
                                    ftp.wipo.int/pub/published_pct_sequences
                                                                                                    Best Local Similarity 56.6
Matches 543; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention relates to nucleic acid sequences (AB067188-AB071212) from Listeria sp. The sequences are useful as probes and primers for identification and/or detection of Listeria (e.g. as contaminants in foods, or mutational analysis) and for analysis of gene expression. Proteins encoded by the nucleic acid sequences can be used to screen for compounds that modulate gene expression, replication and pathogenicity of Listeria (potential therapeutic agents), also for treating infections by Listeria, and are useful as immunogens in
921 AACGGTCCCGGAGAAGCGCGCGAAGCCGATATCCGGATCGCCGGCGCACGCCGGGTAATG 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for detection, polypeptides,
                                                                                                                                                                                                                                                                                                                                                                                                            Antibacterial; Listeria; food contamination; mutational analysis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 6157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            anti-Listeria vaccines.
Note: The sequence data for this patent did not form part
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               treatment and prevention of infection, also related partibodies and modulators
                                                                                                                                                                                                                                                                                                                                           Listeria monocytogenes 4b contig DNA sequence #881
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Pred. No. 2.4e-63;
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                                                                                                                                                                                                                                                                                    (first entry)
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(CNRS ) CNRS CENT NAT
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119622 ACCGAAGGCCTGAAGGACGTGACGGCGCCGATCCGAGTGGCCGTCATGGGCTGCATCGTC 119681
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(NOVO ) NOVOZYMES AS.
                                                                                                                                                                                                                                                                                                                                                                                                                  ABK74401 standard; DNA; 1083
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27-MAR-2001; 2001US-279526P.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTGGCAATATCGGTAATGAAGAGCGTATTCGCATGG---TGGTTGACTGTGCGCGCGAT 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     382 AAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCGCTGGAAAAGATCTGCAAGAA 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  145 AAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGTGTATCCGTACCGACGATGGACGCG 204
                                                                                                                                                                                                                                                                                                                                                                     84
                                                                                                                          N.B. The sequence data for this patent is not represented in the printed specification but is based on sequence information supplied by the
     (I) is useful in DNA arrays or chips to carry out analysis of the expression of the Bifidobacterium gene. ABQBISHS to ABQBISE represent Bifidobacterium related nucleotide sequences given in the Sequence Listing from the present invention but not mentioned further within the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     119262 TICGAGGACGTCGGCTTCCACGATTTCAAGATCTCCGTCAAACACCATGACGTCATCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      119442 Treecceaeeecatreeceacacacacarreecererererececececeeeeeae
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                                                                                                                                                                                                                                                                                                                                                                     25 CGTAGAAAATCAACACGTATTTACGTTGGGAATGTGCCGATTGGCGATGGTGCTCCCATC
                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                         Sequence 349980 BP; 72540 A; 102738 C; 103221 G; 71481 T; 0 other;
                                                                                                                                                                                                                                                               Score 306.2; DB 24; Length 349980;
Pred. No. 1.3e-77;
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                                                                                                                                                                                                                                                                                                                        0; Mismatches 473; Indels
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                                                                                                                                                                                                                                                                                                                        Matches 603; Conservative
                                                                                                                                                                            European Patent Office.
                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                         cation.
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The invention describes a method of monitoring differential expression of genes in a first Bacillus cell relative to expression of the genes in other Bacillus cells, comprising hybridising labelled nucleic acid probes is solated from Bacillus cells to a substrate containing array of Bacillus cells comprising the array, and determining commic sequenced tags (GST), examining the array, and determining containing sequenced tags (GST), examining the array, and determining containing sequenced tags (GST), examining the array, and determining containing sequenced tags (GST), examining the array, and determining contains a spot in the array. The method is useful for measuring the expression of genes in a first Bacillus cells relative to expression of the same genes in one or more second Bacillus cells. The method is useful for monitoring gene copy number variations of unknown open reading frames and monitoring gene copy number variation and stability. Monitoring changes in expression of genes may be used to provide a representation of the way in which Bacillus cells adapt to changes in culture conditions, in which Bacillus cells adapt to changes in culture conditions, convironmental stress or other physiological provocation. Extensive collow-up characterisation is unnecessary, when one spot on an array cequals one gene or one open reading frame, since sequence information is available. This sequence represents a genomic sequence tag (GST) used in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               119802 crecrcaccaragegaacgararedecececaaragageceacgaegreaceaeceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1042 CTGGAAGCACGCATTCGTGCGAAAGCCAGTCAGCTGGACGAAGCGCGTCGAATTGACGT 1100
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                                                                    982 GGCCTCTATGAAGATGGCGTGCGCAAAGACCGTCTGGACAACAACAACGATATGATCGACCAG
                                                                                                                                                                                                                                                                                                                                                 119742 CAGATCTTCATCAAGGCAAGGTCATCAAGACCGTGCCCGAAGACCAGATCGTCGACACG
AATGGCCCAGGTGAGGCGCTGGTTTCTACACTCGGCGTCACCGGCGGCAACAAGAAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bacillus licheniformis genomic sequence tag (GST) #1692.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Differential gene expression, genomic sequenced altered culture condition, environmental stress; physiological provocation, ds.
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The invention relates to isolated polynucleotide (I) and polypeptide (II) sequences. (I) is useful as hybridisation probes, polymerase chair reaction (PCR) primers, oligomers, and for chromosome and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags for identifying expressed genes. (I) is useful in gene therapy techniques to restore normal activity of (II) to to treat disease states involving (II). (II) is useful for generating antibodies against it, detecting or quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical in maging of sites expressing (II). (I) and (II) are useful for treating clisorders involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in claspnostics, forenaics, gene mapping, identification of mutations in cesponaible for genetic disorders or other traits to assess biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and to produce other types of data and products dependent on DNA and amino acid sequences. AASS4197-AAS94564 represent novel human diagnostic coding sequences of the invention.

Note: The sequence data for this patent did not appear in the printed specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGGGGCAGTAAAATCCGCCATTGGTTTAGG-CTGCTGCTGTCTGAAGGCATCGGCGACA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGAAATCGCTG-GTATCCGTTCGCGAGGGATCAACTTCATCGCCTGCCCGACCTGTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess
                                                              forensic;
                                                            mapping; gene mapping; gene therapy; forensic;
medical imaging; diagnostic; genetic disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10;
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                  DNA encoding novel human diagnostic protein #25870.
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The present invention describes a polynucleotide (I) comprising a sequence of a Bifidobacterium genome selected from the nucleotide sequences given in ABQ81842 and ABQ81843, or a sequence stinibiting at least 90% identity or which hybridises with the sequence spiven in ABQ81843. Also described is a polynucleotide (II) encoding a fusion protein, comprising a sequence selected from 1097 sequences given in ABP6528 to ABP66354 ligated in frame to a polynucleotide encoding a heterologous polypeptide. (I) has antidiarrheic and antibacterial activities, and can be used as an inhibitor of Salmonella. (I) which is a probe) is useful for the detection and/or identification of Bifidobacterium longum in a biological sample. A carrier containing the lactic acid bacterium Bifidobacterium longum NCC2705 (CNCM I-2618) can be used for preventing and/or treating diarrhoea brought about by pathogenic bacteria and/or rotavirus. The carrier is a food composition selected from milk, yogurt, curd, cheese, fermented milks, milk based for preventing selected from milk, poduct, curd, cheese, fermented milks, milk based for preventing selected from milk, yogurt, curd, cheese, fermented milks, milk based for preventing selected from milk, yogurt, curd, cheese, fermented milks, milk based for preventing selected from milk, yogurt, curd, cheese, fermented milks, milk based for preventing selected from milk products, ice-creams, fermented cereal based products, milk TTTCTACACTCGGCGTCACCGGCGGCAACAAGAAAAGCGGCCTCTATGAAGATGGCGTGC 1003 GCAAAGACCGTCTGGACAACAACGATATGATCGACCAGCTGGAAGCACGCATTCGTGCGA 1063 805 943 TITCTACACTCGGCGTCACCGGCGGCAACAA-AAAAGCGGCCTCTATGAAGATGG-GTGC 863 864 GCAAAGACCGTCTGGACAACAA-GATATGATCGACCAGCTGGAAGCACGCATTCGTGCGA 922 689 G-CAGGAATTTGATGTTATCGGTACGGTTAACGCGCTGGAGCAACGCCTGG-AGATATCA 746 based powders, infant formula, pet food or a pharmaceutical composition selected from tablets, liquid bacterial suspensions, dried oral supplement, wet oral supplement, dry tube feeding or wet tube feeding. 1064 AAGCCAGTCAGCTGGACGAAGCGCGTCGAATTGACGTTCAGCAGGTTGAAAATAA 1119 Bifidobacterium longum NCC2705; Bifidobacterium; bacterial; antidiarrheic; antibacterial; inhibitor of Salmonella; detection; identification; lactic acid bacterium; diarrhoea; pathogenic bacteria; rotavirus; food composition; pharmaceutical composition; gene; ds. Novel polynucleotide comprising Bifidobacterium genome sequence useful as a probe or primer for detecting and/or identifying Bifidobacterium longum in a biological sample TCACTCCGATGGACGTTTCGATTATCGGCTGCGTGAATGGCCCCAGGTGAGGCGCTGG 747 TCACTCCGATGGACGTTTCGATTATCGGCTGCTGGTGAAT-GCCCAGGTGAGGCGCTGG AAGCCAGTCAGC-GGACGAAGCGCGTCGAATTGACGTTCAGCAGGTTGAAAAAAA 977 Bifidobacterium longum NCC2705 genomic sequence SEQ ID NO:1. BP. Claim 1; SEQ ID 1; 80pp; English. ABQ81842 standard; DNA; 349980 30-JAN-2001; 2001EP-0102050. 30-JAN-2001; 2001EP-0102050. SA. (first entry) NEST ) SOC PROD NESTLE Bifidobacterium longum WPI; 2002-668397/72. EP1227152-A1. 19-NOV-2002 31-JUL-2002. 884 1004 923 ABQ81842; 944 908 RESULT 10 ABQ8184; ò ద ò 셤 ò 셤 ò g

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bronchopulmonary; endocarditis; meningitis; ss.
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the specifically claimed Buchnera sp. genomic DNA sequence, from the present invention.
                                                                             0 other;
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Pred. No. 7.5e-106;
                                                                             237522 A; 83822 C; 84757 G;
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Best Local Similarity 62.2%;
Matches 653; Conservative
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AAS73006 standard; cDNA; 5484

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                                       390972 CAGCCAACTATTAAGCGTCGTGAATCGACAAAATTTATGTGGGAAATGTACCAATTGGT 391031
                                                                                                                   391092 ACAGTIGCICAAATIAAAICATIAGAACGIGITIGGIGCAGATAITGITCGIGIAICIGIT 391151
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CAGGCTCCAATTCAACGTAGAAAATCAACACGTATTTACGTTGGGAATGTGCCGATTGGC 69
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The invention relates to isolated polynucleotide (I) and polypeptide (II) sequences. (I) is useful as hybridisation probes, polymerase chain reaction (PCR) primers, oligomers, and for chromosome and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags containing expressed genes. (I) is useful in gene therapy techniques to restore normal activity of (II) or to treat disease states involving cornected for identifying expressed genes. (I) is useful in gene therapy techniques to restore normal activity of (II) or to treat disease states involving a perpende in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical imaging of sites expressing (II). (I) and (II) are useful in medical disorders involving aberrant protein expression or biological activity. The polypeptide and polymucleotide sequences have applications in diagnostics, forensics, gene mapping, identification of mutations creptonable for genetic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and amino acid sequences. AAS64197-AAS94564 represent novel human can appear in the printed specification, but was obtained in electronic format directly from WIPO specification, but was obtained in electronic format directly from WIPO
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                                                                                                                                         Human, chromosome mapping, gene mapping, gene therapy, forensic, food supplement, medical imaging, diagnostic, genetic disorder; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess
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          used as or primers. The recombinant vectors are used in plant transformation or transfection. gcpE an also act as markers capable of detecting polymorphisms such as single nucleotide polymorphisms (SNPs). gcpE is also used to determine the level or pattern of expression of the protein. The present sequence is Escherichia coli gcpE gene.
                                                                                                                                                                                                                                                                             GTATCCGTACCGACGATGGACGCGCGGCAGAAGCGTTCAAACTCATCAAACAGCAGGTTAAC
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 gcpE is also
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  and to obtain nucleic acid homologues.
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                                                                                            100.0%; Score 1119; 100.0%; Pred. No. 0;
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potential antibacterial, antimycotic, antiparasitic or antiviral agents for use in humans or animals, or antiviral, antiparasitic, fungicidal or herbicidal agents for agriculture.
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The invention relates to gcpE nucleic acid molecule, an essential gene of methyl-D-erythritol phosphate (MEP) pathway) that encodes rice, arabidopsis thaliana or Escherichia coli GCPE protein. gcpE is useful for producting a transgenic plant such as Brassica campestris, B. napus, canola, castor bean, coconut, cotton, crambe, lineed, maize, mustard, oil palm, peanut, rapeseed, rice, safflower, sesame, soybean, sunflower, or wheat with an increased isoprencial (tocopherol) compound level. The expression of GCPE protein in organisms increases the level of tocopherol substrate such as isopentyl diphosphate and dimethylallyl diphosphate biosynthesis. Transgenic organisms overexpressing GCPE protein in transgenic plant may provide tolerance to stresses of GGPE protein in transgenic plant may provide tolerance to stresses of GGPE protein in transgenic plant may provide tolerance to stresses of e.g., oxidative stress tolerance such as a to oxygen or ozone, UV colerance, etc. gcpE may be used to obtain nucleic acid molecules from
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                                                                                                                            gcpE gene; methyl-D-erythritol phosphate; MEP; dimethylallyl diphosphate; transgenic plant; isoprenoid compound; tocopherol; isopentyl diphosphate; food; feed source; transfection; single nucleotide polymorphism; SNP; oxidative stress tolerance; UV tolerance; transformation; plant; ds.
TCGATTATCGGCTGCTGGTGAATGGCCCAGGTGAGGCGCTGGTTTCTACACTCGGCGTC 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gcpE nucleic acid which is an essential gene of the methyl-D-erythritol phosphate pathway, encoding a fully defined GCPE protein which is useful for increasing levels of tocopherol substrates in plants
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/product= "Escherichia coli GCPE protein"
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          in Saccharomyces cerevisiae). An aniagonist or inhibitor of the expression of an essential gene or of its function provides the key for antibacterial therapy. The invention provides methods for identifying such antagonists or inhibitors. These involve contacting a bacterial comprising an essential gene with a candidate antagonist or inhibitor, and testing whether contact leads to cell growth inhibition and/or cell death. The method allows the development of new broad spectrum antibiotics. A conditional mutant of an essential gene can be used to induce a lethal phenotype in bacteria for the analysis of surrogate markers.
                                                                                                                                                                                                 Gaps
potential in higher organisms (mostly no orthologues were identified
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                                                                                                                          ATCGGTACGGTTAACGCGCTGGAGCAACGCCTGGAAGATATCATCACTCCGATGGACGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Identifying antagonists of the expression of gene encoding bacterial growth polypeptide useful for treating bacterial infections or diseases, by evaluating transcription of the gene in the presence of
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                                                                                                                                                                 The present invention relates to antagonists and inhibitors of 24 bacterial genes and proteins. The proteins are thought to be essential for growth in several species of bacteria (including S. pneumoniae, B. burgdorferi, H. influenza and H. pylori). The proteins and coding and ences shown in the specification can be used to identify antagonists and inhibitors which can be used in disease treatment and pesticides. In particular, they can be used against M. tuberculosis. The present sequence is one of the genes of the invention.
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                                         Identifying antibacterial compounds, comprises identifying an antagonist or inhibitor of the expression of a gene encoding polypeptide essential for bacterial growth or survival
                                                                                                                                                                                                                                                                                                                                                             Sequence 1119 BP; 272 A; 279 C; 317 G; 251 T; 0 other;
                                                                                                                              Claim 1; Fig 1; 75pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 100.
Matches 1119; Conservative
    WPI; 2000-687048/67
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H. Dylori GHPO 76
Human ORFX ORF113
Human ORF113
Human ORF1143 cDNA
Helicobacter pylor
DNA encoding novel
Polynucleotide seq
Sequence encoding
Sequence

Title: Perfect score:

Run on:

Sequence:

Scoring table:

Searched:

Database

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Bacterial growth; inhibitor; ygbB; yfhC; yacE; ychB; yejD; yrfI; yggJ; yjeB; yiaO; yrdC; yhbC; ygbP; ybeY; gcpE; kdtB; pf8; ycaJ; b1808; yeaA; yagF; b1983; yidD; yceG; yjbC; antibacterial compound; H. influenza; S. pneumoniae; H. pylori; B. burgdorferi; pesticide; M. tuberculosis; antibiotic; ds.
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ABK78811
AAZ01425
            ABQ81842
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ABA5259533
AAM520565
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04-FEB-2000; 2000EP-0102111.
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Escherichia coli
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8437.629 Million cell updates/sec
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                                                                                        November 23, 2003, 11:58:06 ; Search time 358 Seconds
            GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
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Score

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N. meningitidië B Bacillus clausii g Complete genome se Zea mays partial g Zea mays partial g Cross-reactive all Polynucleotide seq

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APPLICANT: Campos, Narciso;
APPLICANT: Rodriguez-Concepcion, Manuel;
APPLICANT: Rohmer, Michel;
APPLICANT: Rohmer, Michel;
APPLICANT: Seeman, Myriam;
APPLICANT: Valentin, Henry E.;
APPLICANT: Venkatramesh, Tyamagondlu V.;
APPLICANT: Venkatramesh, Mylavarapu
TITLE OF INVENTION: Methyl-0-Erythritol Phosphate Pathway Genes;
FILE REFERENCE: 16516, 107/35-21(51897) US
CURRENT APPLICATION NUMBER: US/09/921,992
CURRENT FILING DATE: 2000-08-06
PRIOR FILING DATE: 2000-08-07
NUMBER OF SEQ ID NOS: 85
SEQ ID NO 22
LENGTH: 670
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Best Local Similarity 56.1<sup>3</sup>
Matches 129; Conservative
                                                                                                                                                                                                                                                                                                                                                                                               ; TYPE: DNA
; ORGANISM: Zea mays
US-09-921-992-22
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Search completed: November 23, 2003, 17:14:25 Job time : 433 secs 280

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                                                                                                          339 recercaceaaecececeaaaaaaaaarreceerrrecracaecarreceaececre
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al Similarity 56.1%; Score 68.4; DB 9; Length 5
al Similarity 56.1%; Pred. No. 2.3e-12;
129; Conservative 0; Mismatches 101; Indels
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OTHER INFORMATION: unsure at all n locations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Campos, Narciso, Applicant: Rodriguez-Concepcion, Manuel, APPLICANT: Rodriguez-Concepcion, Manuel, APPLICANT: Rommer, Michel; APPLICANT: Seeman, Myriam; APPLICANT: Velacish, Tyamagondlu V.; APPLICANT: Venkatramesh, Mylavarapu TITLE OF INVENTION: Methyl-D-Erythritol Phos FILE REFERENCE: 16516,107,35-21(51897)US CURRENT FILING DATE: 2001-08-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: US 60/223,483
PRIOR FILING DATE: 2001-08-06
PRIOR FILING DATE: 2000-08-07
NUMBER OF SEQ ID NOS: 85
SEQ ID NO 23
LENGTH: 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 23, Application US/09921992
Patent No. US20020069426A1
GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
ORGANISM: Zea mays
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NAME/KEY: unsure
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Best Local Si
Matches 129
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                                                                                                                                                                                   233 ATACAAATCGGGATGTTAAGATTGGGAAAAGGAAATCCCGTTGTGATTCAATCGATGATT 292
                                                                                                                                                                                                                                                     103 AATACGCGTACGACACGTCGAAGCAACGGTCAATCAAATCAAAGGCGCTGGAACGCGTT 162
                                                                                                                                                                                                                                                                                                                                                                                                GGCGCTGATATCGTCCGTGTATCCGTACCGACGATGGACGCGGCGGAGAGCGTTCAAACTC 222
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTAAAAAGAGAGTICATATTCCTTTGGTAGCGGATATTCATTTTGATTATCGACTTGCC 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       283 CTGAAAGTAGCGGAATACGGCGTCGATTGTCTGCGTATTAACCCTGGCAATATCGGTAAT 342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAAGAGCGTATTCGCATGGTGGTTGACTGTGCGCGCGATAAAAACATTCCGATCCGTATT 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCGTTAACGCCGGATCGCTGGAAAAGATCTGCAAGAAAAGTATGGCGAACCGACGCCG 462
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APPLICANT: Campos, Narciso;
APPLICANT: Rodriguez-Concepcion, Manuel;
APPLICANT: Rodriguez-Concepcion, Manuel;
APPLICANT: Rodriguez-Concepcion, Manuel;
APPLICANT: Seeman, Myriam;
APPLICANT: Valentin, Henry E.;
APPLICANT: Venkatramesh, Tyamagondlu V.;
APPLICANT: Venkatramesh, Mylavarapu
TITLE OF INVENTION: Methyl-D-Erythricol Phosphate Pathway Genes
FILE REFERENCE: 16516.107/35-21(51897)US
CURRENT APPLICATION NUMBER: US/09/921,992
CURRENT APPLICATION NUMBER: US/09/921,992
PRIOR PAPLICATION NUMBER: US 60/223,483
PRIOR PLING DATE: 2000-08-07
NUMBER OF SEQ ID NOS: 85
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 463 CAGGCGTTGCTGGAATCTGCCATGCGTCATGTTGATCATCTCGATC 508
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                                        0; Mismatches 201; Indels
          Pred. No. 9.8e-39
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   56.98;
Best Local Similarity 56.9
Matches 265; Conservative
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US-09-921-992-21
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US-09-921-992-21/c
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483 GGACCCACCCCAAAAGGCCATGGTAGAAAGCGCTTTGTATAACGCCAAACTTTTAGAAGAT 542
                                                                                                                                                                                                                                                                                                                                                                                                                   723 GGCATTGGGGATACGATGCGCGTATCCATCACAGGGGAATTAGAAATGAAATCAAAGTG 782
                                                                                                                                                        571 TCTTATCGTTTGCTGGCAAAACAGATCGATCAGCCGTTGCATCTGGGGATCACCGAAGCC
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                                                   511 CTGAACTTCGATCAGTTCAAAGTCAGCGTGAAAGCGTCTGACGTCTTCCTCGCTGTTGAG
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APPLICANT: Indivis, Carol Yoseph
APPLICANT: Lodes, Michael J
APPLICANT: Secrist, Heather
APPLICANT: Carter, Darrick
APPLICANT: Smith, Carole L.
APPLICANT: Smith, Carole L.
APPLICANT: Stolk, John A.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY
TITLE OF INVENTION: AND DIAGNOSIS OF COLON CANCER
FILE REFERENCE: 210121.563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13.0%; Score 145.6;
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SOFTWARE: FastSEQ for Windows Version 4.0
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1184, Application US/10066543 Publication No. US20030087818A1 GENERAL INFORMATION:
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LOCATION: 2, 645, 659;
OTHER INFORMATION: n =
US-10-066-543-1184
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LENGTH: 706
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APPLICANT: Miller, Charles
APPLICANT: Miller, Charles
APPLICANT: Monb, Jean-Francois
APPLICANT: Tomb, Jean-Francois
TITLE OF INVENTION: Identification of Polynucleotides
TITLE OF INVENTION: Encoding No. US20020115078A1e1 Helicobacter Polypeptides in the
TITLE OF INVENTION: Genome
TITLE REFERENCE: O60132/041002
CURRENT APPLICATION NUMBER: US/09/881,752A
CURRENT FILING DATE: 2001-06-15
                                                                    2127574 GITGITAACGGCCCAGGTGAGGCTCGCGACGCTGACCTCGGTGTTGCATCCGGTAACGGC 2127515
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                             GTGGTGAATGGCCCAGGTGAGGCGCTGGTTTCTACACTCGGCGTCACCGGCGGCACAACAG 975
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                                                                                                                                                                                 2127514 AAGGGCCAGATCTTTGTCAAGGGCG 2127490
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PRIOR APPLICATION NUMBER: US 08/833,457
PRIOR FILING DATE: 1997-04-01
NUMBER OF SEQ ID NOS: 370
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 195
LENGTH. 110
                                                                                                                               AAAAGCGGCCTCTATGAAGATGGCG 1000
                                                                                                                                                                                                                                                                                                      Sequence 195, Application US/09881752A
Patent No. US20020115078A1
GENERAL INFORMATION:
APPLICANT: Kleanthous, Harold
APPLICANT: Al-Garawi, Amal
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Matches 524; Conservative
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; LOCATION: (51)
US-09-881-752A-195
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US-09-881-752A-195
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PRIOR APPLICATION NUMBER: JP 00.
PRIOR FILING DATE: 2000-08-03.
NUMBER OF SEQ ID NOS: 7059.
SOFTWARE: Patentin ver. 3.0.
LENGTH: 3309400.
                                                                                                                                                                            Query Match
21.4%;
Best Local Similarity 54.1%;
Matches 533; Conservative
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                                                                                                               GATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTGAAAGCGTCTGACGTC
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                   AACCCTGGCAATATC - - - GGTAATGAAGAGCGTATTCGCATGGTGGTTGACTGTGCGCGC
                                                  310 AACCCAGGCAACATCAAGGAATTCGATGGTCGCGTTAAAGAAGTAGCAAAAGCTGCAGGC
                                                                                      GATAAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCGCTGGAAAA---AGATCTG
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Publication No. US20020197605A1
GENERAL INFORMATION:
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APPLICANT: MIZOGUCHI, HIROSHI
APPLICANT: ANDO, SEIKO
APPLICANT: HAYASHI, MIKIRO
APPLICANT: OCHIAI, KEIKO
APPLICANT: YOKOI, HARUHIKO
APPLICANT: TATEISHI, NAOKO
APPLICANT: SENOH, AKIHRO
APPLICANT: IKEDA, MASATO
APPLICANT: OZAKI, AKIO
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US-09-738-626-1/c
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                3309400;
                Length
Score 239.4; DB 10;
Pred. No. 7.4e-69;
0; Mismatches 446;
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70 ATTTCCGTCCAGTCGATGACCACCACCAAAACCCACGACATCAACGGCACCCTGCAACAG 129
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                                                                                                             856 GCGCAAGTCGACGTCTACACCCTGGCCAACGAGGTAACCGCCGGCCTGGATGGTCTCGAT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: OZAKI, AKIO
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
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PRIOR FILING DATE: 1999-12-16
PRIOR PELICATION NUMBER: JP 00/159162
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: PARENTIN VEY: 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; Sequence 2205, Application US/09738626; Publication No. US20020197605A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: DNA ORGANISM: Corynebacterium glutamicum
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ANDO, SEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HAYASHI, MIKIRO
OCHIAI, KEIKO
YOKOI, HARUHIKO
TATEISHI, NAOKO
SENOH, AKIHIRO
IKEDA, MASATO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: NAKAGAWA, SATOSHI
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US-09-738-626-2205
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 243.8; DB 10; Length
Pred. No. 3.3e-72;
0; Mismatches 462; Indels
                                      PRIOR APPLICATION NUMBER: 60/134,093
PRIOR PELING DATE: 1999-05-14
PRIOR PELING DATE: 1999-05-14
PRIOR PELING DATE: 1999-05-14
PRIOR APPLICATION NUMBER: 60/165,124
PRIOR APPLICATION NUMBER: 60/165,124
PRIOR PELING DATE: 1999-11-12
PRIOR FILING DATE: 1999-11-12
PRIOR FILING DATE: 1999-11-12
NUMBER OF SEQ ID NOS: 292
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
ORGANISM: Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
21.8%;
Best Local Similarity 53.5%;
Matches 534; Conservative
FILING DATE: 1999-03-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-712-363-110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 110
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APPLICANT: Elsenberg, Sergio H.
APPLICANT: Rotstein, Sergio H.
APPLICANT: Marcotte, Edward M.
TITLE OF INVENTION: INTERACTIONS OF PROTEINS BY COMPARATIVE ANALYSIS
TITLE OF INVENTION: INTERACTIONS OF PROTEINS BY COMPARATIVE ANALYSIS
FILE REPERENCE: 07419-032001
CURRENT APPLICATION NUMBER: DC7/US00/02246
PRIOR FILING DATE: 2000-01-28
PRIOR PLILING DATE: 2000-01-28
PRIOR FILING DATE: 2000-01-28
PRIOR PLILING DATE: 1999-01-29
PRIOR FILING DATE: 1999-01-29
PRIOR FILING DATE: 1999-01-29
PRIOR FILING DATE: 1999-02-01
PRIOR PLILING DATE: 1999-02-01
PRIOR PLILING DATE: 1999-02-01
PRIOR PLILING DATE: 1999-02-01
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Patent No. US20020164588A1
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APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, HIROSHI
APPLICANT: BHIRAMA, HIROSHI
APPLICANT: SHIKAWA, HIROSHI
APPLICANT: SHIRAM, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: BATAOSI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-30
PRIOR PILING DATE: 2001-05-30
PRIOR PILING DATE: 2001-05-30
PRIOR PILING DATE: 2001-05-30
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Sequence 1, Application US/10156761; Publication No. US20030119018A1; GENERAL INFORMATION:

RESULT 6 US-10-156-761-1/c APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAMA, JUN
APPLICANT: HORIKAMA, HROSHI
APPLICANT: SHIBA, TADAYOSHI

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3141425 GGCTGCCAGATCGTCCGTGTGGCCTGCCCCACGCACGACGACGACGCCCTCGCGGTC 3141366
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                                                                              CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR PILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 1
LENGTH: 9025608
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
                                                                                                                                                                                                                                                                                                                                                    TYPE: DNA ORGANISM: Streptomyces avermitilis
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CTHER INFORMATION: a, t, US-10-156-761-1
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  CTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTGAAAGCGTCTGACGTCTTCCTC
                                              501 CTTGAGGATCTCGATTTCCACGATATCATCGTCAGCATGAAGGCGTCTGATGTAAACCTG
                                                                                                                                     561 GCGATTGAGGCATATGAAAAGCGGCTAAAGCTTTCGATTATCCGCTTCATTTAGGCATC
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APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: HATTORI, WASAHIRA
ITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFRENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: UP 2001-204089
PRIOR PILING DATE: 2001-05-30
PRIOR PILING DATE: 2001-05-30
PRIOR PILING DATE: 2001-06-30
PRIOR PILING DATE: 2001-06-30
PRIOR PILING DATE: 2001-06-30
SEQ ID NO 2548
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; LOCATION: (1)..(1155)
US-10-156-761-2548
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APPLICANT: Clausen, Ib Groth
TITLE OF INVENTION: Methods For Monitoring Multiple Gene;
TITLE OF INVENTION: Methods For Monitoring Multiple Gene;
TITLE OF INVENTION: Expression
FILE REFERENCE: 10085.500-US
CURRENT APPLICATION NUMBER: US/09/974,300
CURRENT FILING DATE: 2001-10-05
PRIOR APPLICATION NUMBER: 09/680,598
PRIOR APPLICATION NUMBER: 00/279,526
PRIOR APPLICATION NUMBER: 60/279,526
PRIOR FILING DATE: 2001-03-27
NUMBER OF SEQ ID NOS: 8481
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 1693
                                                                                                                                                                                                                                 315313 GAAAAAATGGAAATTAAAATTCGAAAAAA 315342
                                                                                                                                                                                     GACCAGCTGGAAGCACGCATTCGTGCGAAA 1065
                                                                                                                                                                                                                                                                                                                                                ; Sequence 1692, Application US/09974300
; Patent No. US20020146721A1
; GENERAL INFORMATION:
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FILING DATE: 2000-04-07
PRIOR FILING DATE: 2000-04-(
NUMBER OF SEQ 1D NOS: 7
SOFTWARE: PatentIn Ver. 2.1
SEQ 1D NO 1
LENGTH: 640681
                                                                                                                                   al Similarity
653; Conserv
                                                                 TYPE: DNA
CRGANISM: Buchnera
US-09-790-988-1
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                                                     GTAGCAGATATTCATTTCGACTATCGTATCGCGTTAAAAGTCGCAGAATATGGAGTGGAT 391271
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APPLICANT: WATANABE, HIDEMI
APPLICANT: WATANABE, HIDEMI
APPLICANT: HATORI, MASAHIRA
APPLICANT: SAKAKI, YOSHIYUKI
ITILE OF INVENTION: GENOME DNA OF BACTERIAL SYN
FILE REFERENCE: 081356/0159
CURRENT APPLICATION NUMBER: US/09/790,988
CURRENT FILING DATE: 2001-02-23
PRIOR APPLICATION NUMBER: JP2000-107160
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Patent No. US20020127687A1
GENERAL INFORMATION:
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US-09-790-988-1
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                                                        Gaps
Length 640681;
                                                     Indels
  DB 10;
36.1%; Score 403.6; DB 10.
.larity 62.2%; Pred. No. 2.1e-125;
Conservative 0; Mismatches 394;
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NAME/KEY: misc\_feature
LOCATION: (51602). (51602)
OTHER INFORMATION: n equals a, FEATURE: NAME/KEY: misc\_feature LOCATION: (55369)..(55369) OTHER INFORMATION: n equals a, AANE/KEY: misc feature LOCATION: (65313)..(65313) JTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (102696)..(102696) JTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (119<sup>7</sup>50)..(119750) YTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (119924)..(119924) OTHER INFORMATION: n equals a, NAME/KEY: misc\_feature LOCATION: (121344)..(121344) OTHER INFORMATION: n equals a, FEATURE: FEATURE:
NAME/KEX: misc\_feature
LOCATION: (51334)
OTHER INFORMATION: n equals a, AAME/KEY: misc feature LOCATION: (65309)..(65309) JTHER INFORMATION: n equals a, PEATURE:
AMME/KEY: misc\_feature
(117136).(117136)
OTHER INFORMATION: n equals a, AME/KEY: misc feature COCATION: (80024)...(80024) THER INFORMATION: n equals NAME/KEY: misc feature LOCATION: (100091)..(100091) OTHER INFORMATION: n equals NAME/KEY: misc feature LOCATION: (120038)..(120038) OTHER INFORMATION: n equals EATURE: EATURE: EATURE:

391032 GGGGATGCGCCTATTGCCGTGCAATCAATGACAAATACTCGCACCACTGATGTGGAAGCG 391091 391092 ACAGTIGCTCAAAATTAAAATCATAGAACGTGTTGGTGCAGATATTGTTCGTGTATCTTTT 391151 70 GATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACGACGTCGAAGCA 129 130 ACGGTCAATCAAAATCAAGGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGTGTATCCGTA 189 249 10 CAGGCTCCAATTCAACGTAGAAATCAACACGTATTTACGTTGGGAATGTGCCGATTGGC 69 CGGACGATGGACGGCCAGAAGCGTTCAAACTCATCAAACAGCAGGTTAACGTGCCGCTG 3; Сарв Query Match 55.6%; Score 622; DB 14; Length 1830121; Best Local Similarity 74.8%; Pred. No. 7.4e-200; Matches 794; Conservative 0; Mismatches 265; Indels 3; υ ö or or ö ö ö or or or 占 ö ö ö מ מ ρ σ σ p מ σ Ø NAME/KEY: misc feature LOCATION: (122]67)..(122167) OTHER INFORMATION: n equals a, t, 'n ú Ţ NAME/KEY: misc feature LOCATION: (150841)..(150841) OTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (131340)..(131340) OTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (131360)..(131360) OTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (142750)..(142750) OTHER INFORMATION: n equals a, FEATURE:
NAME/KEX: misc feature
LOCATION: (145171). (145171)
OTHER INFORMATION: n equals a, FEATURE:
NAME/KEX: misc\_feature
LOCATION: (145942).(145942)
OTHER INFORMATION: n equals a, FEATURE:
NAME/KEY: misc feature
NACATION: (147197) .(147197)
OTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (152500)..(152500) OTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (139910)..(139910) OTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (1450s8)...(145058) OTHER INFORMATION: n equals a, NAME/KEY: misc\_feature LOCATION: (122336)...(122336) OTHER INFORMATION: n equals a, FEATURE: NAME/KEY: misc feature LOCATION: (140398)..(140398) OTHER INFORMATION: n equals a, FEATURE: NAME/KEY: misc\_feature LOCATION: (152530)..(152530) 190 FEATURE: FEATURE: ò 셤 ò 셤 ò 임 ò

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NAME/KEY: misc feature
LOCATION: (9921)
OTHER INFORMATION: n equals a, t,
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NAME/KEY: misc feature
LOCATION: (10150). (10150)
OTHER INFORMATION: n equals a, t,
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LOCATION: (4747)..(4747)
OTHER INFORMATION: n equals a,
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NAME/KEY: misc feature
LOCATION: (36543)...(36543)
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LOCATION: (40808)..(40810)
OTHER INFORMATION: n equals a,
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LOCATION: (45593)..(45593) ,
OTHER INFORMATION: n equals a,
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NAME/KEY: misc_feature
LOCATION: (29298)...(29298)
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LOCATION: (36551)..(36551)
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LOCATION: (36636)..(36636)
OTHER INFORMATION: n equals
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LOCATION: (44416)
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LOCATION: (44975)..(44975)
OTHER INFORMATION: n equals
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LOCATION: (44905)..(44
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                           121 GTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGT 180
                                                                                                GTATCCGTACCGACGATGGACGCGGCAGAAGCGTTCAAACTCATCAAACAGCAGGTTAAC 240
                                                                                                                              240
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                                                                                                                                                                                                                                                                                                               361 GTGGTTGACTGTGCGCGCGGTAAAACATTCCGATCCGTATTGGCGTTAACGCCGGGATCG 420
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61 CCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCATACGCGTACGACAGAC 120
                                                                                                                      481 GCCATGCGTCATGTTGATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTG
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                                                 121 GTCGAAGCAACGGTCAATCAAGGCGCTGGAACGCGTTGGCGTGGTATCGTCGT
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Sequence 1, Application US/10329960
Publication No. US20030099277A1
GENERAL INFORMATION:
APPLICANT: Fleisthmann et al.
TITLE OF INVENTION: Nucleotide Sequence of the Haemophilus influenzae Rd Genome, Fragm
TITLE OF INVENTION: Thereof, and Uses Thereof
FILE OF INVENTION: Thereof, and Uses Thereof
FILE OF INVENTION: WHORER: US/10/329,960
CURRENT FILING DATE: 2003-01-02
PRIOR APPLICATION NUMBER: US 09/643,990
PRIOR PILING DATE: 1095-06-07
PRIOR PILING DATE: 1995-06-07
PRIOR APPLICATION NUMBER: US 08/487,429
PRIOR APPLICATION NUMBER: US 08/487,429
PRIOR PILING DATE: 1995-06-07
PRIOR PILING DATE: 1995-04-21
NUMBER OF SEQ ID NOS: 1
SEQ ID NO 1
LENGTH: 1830121
TYPE: DNA
ORGANISM: Haemophilus influenzae
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LOCATION: (45732)..(45732)
OTHER INFORMATION: n equals a, t,
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RESULT 2 US-10-329-960-1

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CCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACAGAC 120
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100.0%; Score 1119;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1119; Conservative 0; Mismatches
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Sequence 1, Appli
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8876.507 Million cell updates/sec
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                                                                                                                                                                                    November 23, 2003, 15:08:02 ; Search time 412 Seconds
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1: /cgn2 6/ptodata/1/pubpna/US07 PUBCOMB.seq:*
2: /cgn2_6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*
3: /cgn2_6/ptodata/1/pubpna/US06_NEW_PUB.seq:*
4: /cgn2_6/ptodata/1/pubpna/US06_NEW_PUB.seq:*
5: /cgn2_6/ptodata/1/pubpna/US06_NEW_PUB.seq:*
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11: /cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
11: /cgn2_6/ptodata/1/pubpna/US10A_PUBCOMB.seq:*
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
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10 US-09-79-0-988-1

10 US-09-74-300-1692

14 US-10-156-761-2548

14 US-10-156-761-1

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10 US-09-738-626-2205
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US-09-921-992-23
US-09-921-992-22
US-09-974-300-6102
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US-10-066-543-1184
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Maximum Match 100%
Listing first 45 summaries
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Gapop 10.0 , Gapext 1.0
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Match Length DB ID
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Maximum DB seq length: 200000000
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26.2 1083 11

26.2 1083 11

23.7 1155 12

23.3 1155 12

21.4 3309400

18.9 1180 11

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                                                                                                                                                                                    Run on:
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Sequence 34, Appl
Sequence 18, Appl
Sequence 60, Appl
Sequence 930, App
Sequence 1, Appli
Sequence 45; Appli
                                                                      Sequence 39, Appl
Sequence 11, Appl
Sequence 12, Appl
Sequence 13, Appl
Sequence 13, Appl
Sequence 13, Appl
Sequence 40, Appl
Sequence 40, Appl
Sequence 29, Appl
Sequence 27, Appl
Sequence 27, Appl
Sequence 346, Appl
                              Sequence 35,
Sequence 16,
Sequence 15,
Sequence 1, A
Sequence 39,
Sequence 33,
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GENERAL INCURIATION;
APPLICANT: Boronat, Albert;
APPLICANT: Campos, Narciso;
APPLICANT: Rodriguez-Concepcion, Manuel;
APPLICANT: Rodriguez-Concepcion,
APPLICANT: Rohmer, Michel;
APPLICANT: Seeman, Myriam;
APPLICANT: Valentin, Henry E.;
APPLICANT: Venkatramesh, Tyamagondlu V.;
APPLICANT: Venkatramesh, Mylavarapu
TITLE OF INVENTION: Methyl-D-Erythritol Phosphate Pathway Genes
FILE REFERENCE: 16516.107/35-21(51897)US
CURRENT APPLICATION NUMBER: US/09/921,992
CURRENT FILING DATE: 2000-08-06
PRIOR FILING DATE: 2000-08-07
NUMBER OF SEQ ID NOS: 85
SEQ ID NO 3
LENGTH: 1119
                      Sequence
                                                                                                                                                                                                 uS-10-184-644-346
uS-10-184-634-346
uS-09-921-992-44
uS-09-921-992-34
uS-09-921-992-18
                                                                                                                                                                                                                                                               US-10-242-056-60
US-10-156-761-930
US-10-314-657-1
                                       US-09-921-992-15
US-09-921-992-15
US-09-921-992-3
US-09-921-992-3
US-09-921-992-31
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US-09-921-992-13
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US-09-921-992-28
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US-09-921-992-28
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                                                                                                                                                                                                                                                                                                                              ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                             Sequence 3, Application US/09921992
Patent No. US20020069426Al
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA ORGANISM: Escherichia coli
) NAME/KEY: CDS
; LOCATION: (1)..(1119)
US-09-921-992-3
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Search completed: November 23, 2003, 15:55:33 Job time : 96 secs

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RESULT 15
US-09-252-991A-6251
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                                                                                                                                                                                    89 gcgaridcaccrarragrigiccaagrargacaaaraccaaaacrrgcgargrigacgaa
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                                                                                                                                                           71 ATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACGACGTCGAAGCAA
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                                                                                                    11 AGGCTCCAATTCAACGTAGAAAATCAACACGTATTTACGTTGGGAATGTGCCGATTGGCG
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                                               Length 1137;
                                                                          Indels
                                               Score 401.4; DB 4;
Pred. No. 1.1e-116;
0; Mismatches 421;
  ; ORGANISM: Acinetobacter baumannii
US-09-328-352-3780
                                               Query Match
Best Local Similarity 60.8%;
Matches 654; Conservative
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Sequence 6251, Application US/09252991A

Sequence 6251, Application US/09252991A

Patent No. 6551795

GENERAL INFORMATION:

GENERAL INFORMATION:

TITLE OF INVENTION:

TITLE OF INVENTION UNMER:

US 60/074,788

PRIOR PILING DATE:

1999-02-18

PRIOR PILING DATE:

1999-02-18

PRIOR FILING DATE:

1998-07-27

NUMBER:

US 60/094,190

PRIOR FILING DATE:

1998-07-27

NUMBER OF SEQ ID NOS:

33142

SEQ ID NO 6251
971 ACAAGAAAAGCGGCCTCTATGAAGATGGCGTGCGCAAAGACCGTCTGGACAACAACGATA 1030
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                                       221 TCATCAAACAGCAGGTTAACGTGCCGCTGGTGGCTGACATCCACTTCGACTATCGCATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 AGATCAAGCAGGTCAACGTGCCGCTGGTCGACCACTTCGACTATCGCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               341 ATGAAGAGCGTATTCGCATGGTGGTTGACTGTGCGCGCGATAAAAACATTCCGATCCGTA
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                                                                                   TGATCGACCAGCTGGAAGCACGCATTCGTGCGAAAGCCAGTCAGCTGGACGAAGC
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Pred. No. 1.6e-84;
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ORGANISM: Pseudomonas aeruginosa
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Best Local Similarity 71.2%;
Matches 395; Conservative
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Sequence 3780, Application US/09328352

Patent No. 6562958
GENERAL INFORMATION:
TITLE OF INVENTION: BLEECH ACID AND AMINO ACID SEQUENCES RELATING TO ACINETOBACTER TITLE OF INVENTION: BAUMANNII FOR DIAGNOSTICS AND THERAPEUTICS
FILE REPRENCE: GT-99-03PA
CURRENT APPLICATION NUMBER: US/09/328,352
CURRENT FILING DATE: 1999-06-04
NUMBER OF SEQ ID NOS: 8252
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                                                                                                                                                                                                                                                                                                                                                                                                              CGCGCGAGCGCAACCATCCCGATCCGTATCGGCGTCAATGCCGGTTCGCTGGAAAAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             426 TGCAGAAGAAATACGGCGAACCGCACCCCGGAAGCCCTGCTCGAATCGGCCATGCGCCACG
   <u> acaregaacecececeaecarresecaagareaacaecaecrearecreerecreerec</u>
                                                                                                                                               246 CCGACATCCACTTCGACTATCGCATCGCCCTGCGCGTCGCCGAGCTGGGAGTGGACTGCC
                                                                                                                                                                                                                          TGCGTATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATGGTGGTTGACTGTG
                                                                                                                                                                                                                                                                                  306 TGCGCATCAATCCGGGCAACATCGGTCGCGAGGACCGGGTCAAGGCCGTGGTCGATGCCG
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US-09-328-352-3780
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Sequence 6339, Application US/09252991A

GENERAL INFORMATION:
APPLICAVE:
MATC J. Rubenfield et al.
TITLE OF INVENTION:
NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO ITILE OF INVENTION:
TITLE OF INVENTION:
ARRUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT PILING DATE: 1999-02-18
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-02-17
NUMBER OF SEQ ID NOS: 33142
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Best Local Similarity 68.00
Matches 729; Conservative
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NESOUR 1252-991A-6131/C

Sequence 6131, Application US/09252991A

Patent No. 6551795

Tarte No. 6551795

TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS

TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS

TITLE OF INVENTION: NUMBER: 107196.33

FILE REFERENCE: 107196.34

CURRENT FILING DATE: 1998-02-18

PRIOR APPLICATION NUMBER: US 60/074,788

PRIOR FILING DATE: 1998-02-18

PRIOR FILING DATE: 1998-07-27

PRIOR FILING DATE: 1998-07-27

SEQ ID NOS: 33142

LENGTH: 2202
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TITLE OF INVENTION: NUCLEIC ACID AND ANINO ACID SEQUENCES RELATING TO PSEUDOMONAS TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS CURRENT APPLICATION NUMBER: US/09/252,991A CURRENT FILING DATE: 1999-02-18 PRIOR APPLICATION NUMBER: US 60/074,788 PRIOR APPLICATION NUMBER: US 60/074,788 PRIOR PILING DATE: 1998-02-18 PRIOR PLICATION NUMBER: US 60/094,190 PRIOR PLICATION NUMBER: US 60/094,190 NUMBER OF SEQ ID NOS: 33142 SEQ ID NOS: 33142
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  706 ACTTTGACTACCGTATCGCGATGAAAGTGGCTGAATATGGTGTTGACTGCCTACGAATTA 647
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                                                                                   646 ACCCAGGTAATATCGGCAGTGAAGAGCGTATTCGCCAAGTCGTTGATAGTGCTCGTCATC
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                                                                                                                            AAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCGCTGGAAAAGATCTGCAAGAAA
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67.8%; Pred. No. 1.3e-152;
ive 0; Mismatches 346;
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ORGANISM: Pseudomonas aeruginosa
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Best Local Similarity 67.8
Matches 736; Conservative
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US-09-252-991A-6420
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166 TIGCTIGCCCAACCIGITCACGCCAAGAATTIGAIGIGATIGGIACGGIAAAIGCTTIGG 107
                                         863 AGCAACGCCTGGAAGATATCATCACCCGATGGACGTTTCGATTATCGGCTGCGTGGTGA 922
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                                                                                                                                                                                                               RESULT 10
US-09-170-187-10/c
i Sequence 10, Application US/09170187
j Patent No. 638145
j Fatent No. 638145
j TITLE OF INVENTION:
i TITLE OF INVENTION: Wethods For Screening For Antimicrobials
i TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
i TITLE OF SEQUENCES:
j CORRESPONDENCE ADDRESS:
j CORRESPONDENCE ADDRESS:
j ADDRESSEE: Medlen & Carroll, LLP
street: 220 Montgomery Street, Suite 2200
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ZIP: 94104

MEDIUM TYPE: Floppy disk
COMPUTER: Floppy disk
COMPUTER: Floppy disk
COMPUTER: Patential PC-DOS/MS-DOS
SOFTWARE: Patential Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/170,187
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47.8%; Score 534.6; DB 4;
Best Local Similarity 75.3%; Pred. No. 8.2e-159;
Matches 666; Conservative 0; Mismatches 219;
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APPLICATION DATA:
APPLICATION NUMBER: 08/827,190
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Carroll, Peter G.
REGISTRATION NUMBER: 32,837
REFERENCE/DOCKET NUMBER: CASE-024
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 397-8338
INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
LENGTH: 886 Date pairs
TYPE: nucleic acid
STRANDEDNESS: double
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              803 TCGCCTGCCCGACCTGTTCGCGTCAGGAATTTGATGTTATCGGTACGGTTAACGCGCTGG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 534.6; DB 2;
Pred. No. 8.2e-159;
0; Mismatches 219;
                                              CLASSIFICATION: 435
ATTORNEY/AGENT INCORMATION:
NAME: CAITOLI, Peter 6.
REGISTRATION NUMBER: 32,837
REFERENCE/DOCKET NUMBER: CASE-02443
TELECOMMUNICATION INFORMATION:
TELEPRONE: (415) 705-8410
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:
LENGTH: 886 base pairs
APPLICATION NUMBER: US/08/827,190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TOPOLOGY: linear; MOLECULE TYPE: DNA (genomic) US-08-827-190-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 75.3%;
Matches 666; Conservative
                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 886 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
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                                                               GCGATAAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCGCTGGAAAAAGATCTGC
                                                                                                                           364 GAGACAAAATATTCCGATTCGTATTGGTGTAAATGCAGGCTCTTTAGAAAAAGATTTGC
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| Patent No. 5858367
| GENERAL INFORMATION:
| TITLE OF INVENTION: Methods For Screening For Antimicrobials
| TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
| TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
| TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
| TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
| TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
| TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
| TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
| STREET: 220 Montgomery Street, Suite 2200
| CITY: San Francisco
| STATE: California CONTRIN: United States of America |
| COMPUTER READABLE FORM: |
| MEDIUM TYPE: Floppy disk |
| MEDIUM TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
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US-08-827-190-10/c
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                                                                                                                                      GENERAL INFORMATION:
APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1079;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 619.8; DB 4; Length
Pred. No. 1.1e-185;
0; Mismatches 262; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin Release #1.0, Version #1.30
    1024 TGAACCAATTAGAAGCAAAATTCGTGCGAAAGTC 1058
                                                                                                                                                                                                                                                          ADDRESSEE: Medlen & Carroll, LLP
STREET: 220 Montgomery Street, Suite 2200
                                                                                                                                                                                                                                                                                                                                         United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/09/170,187
                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/827,190
                                                                                                   Sequence 7, Application US/09170187
Patent No. 6383745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: CASE
TELECOMMUNICATION INFORMATION:
TELEFONE: (415) 397-8338
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Carroll, Peter G. REGISTRATION NUMBER: 32,837
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Carroll, Peter G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 1079 base pairs
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 74.9
Matches 790; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE
                                                                                                                                                                                                                                                                                                                                                          94104
                                                                                                                                                                                                                                                                                               CITY: San
STATE: Ca
COUNTRY:
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                                                             RESULT 8
US-09-170-187-7
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                                                                                                                                      77 CTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACAGCGTCGAAGCAACGGTCA 136
                                                                                                                                                                         GGCCTATTGCCGTGCAATCAATGACAAATACTCGCACCACTGATGTGGAAGCGACAGTTG 123
                                                                                                                                                                                                                                                          124 CTCAAATTAAATCATTAGAACGTGTTGGTGCAGATATTGTTCGTGTATCTTCTACAA 183
                                                                                                                                                                                                                                                                                                 TGGACGCGCAGAAGCGTTCAAACTCATAAACAGCAGGTTAACGTGCCGCTGGTGGCTG 256
                                                                                                                                                                                                                                                                                                                                                                            ACATCCACTTCGACTATCGCATTGCGCTGAAAGTAGCGGAATACGGCGTCGATTGTCTGC 316
                                                                                                                                                                                                                                                                                                                                                                                                           244 ATATTCATTTCGACTATCGTATCGCGTTAAAAGTCGCAGAATATGGAGTGGATTGTTTAC 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATGGTGGTTGACTGTGCGC 376
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                                                                                                 63
                                                                                                                                                                                                                                                                                                                           137 ATCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGTGTATCCGTACCGACGA
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                                                                                                 CTATTAAGCGTCGTGAATCGACAAAATTTATGTGGGAAATGTACCAATTGGTGGGGATG
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                                                           CAATTCAACGTAGAAATCAACACGTATTTACGTTGGGAATGTGCCGATTGGCGATGGTG
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74.98;
                  Matches 790; Conservative
  Best Local Similarity
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391932 AACAAAAAAAGGGGTTATTATCTTGACGGAGAACGCCCAAAAAGAGGGGTTTTGATAACGAA 391991
                                                                                                    391632 TTAGGAATGTTATTAGCTGAGGCATTGGCGATACACTACGCGTCTCTTTGGCGGCAGAT 391691
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391572 CATTTAGGCATTACAGAAGCAGGTGGCGCACGCGCTGGTGCAGTAAAATCTGCAGTGGGT 391631
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                                                                                                                                                                                                           391692 ccreracaccaaarcaaagrecerrrrcararrrrcaaarcrrracecarrecrreaca
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                                                                                                                                                            CCGGTCGAAGAGATCAAAGTCGGTTTCGATATTTTGAAATCGCTGCGTATCCGTTCGCGA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         391992 GATATAGTGAACCAATTAGAAGCAAAATTCGTGCGAAAGTC 392033
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MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/827,190
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 220 Montgomery Street, Suite 2200 CITY: San Francisco STATE: California COUNTRY: United States of America
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ATTORNEY/AGENT INFORMATION:
NAME: CARTOll, Peter G.
REGISTRATION NUMBER: 32,837
REFERENCE/POCKET NUMBER: CASE
TELECOMMUNICATION INFORMATION:
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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CORRESPONDENCE ADDRESS:
ADDRESSEE: Medlen &
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              94104
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Pred. No. 1.4e-184;
0; Mismatches 265; Indels
                                                                                                                                                                                                                                                                                                                                                                     REFERENCE DOCKET NUMBER: PB186P1C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 301-610-5790
                                               CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/643,990A
                                                                                                                                                                             APPLICATION NUMBER: 08/487,429
FILING DATE: 1995-06-07
APPLICATION NUMBER: 08/426,787
FILING DATE: 1995-04-21
ATTORNEY/AGENT INFORMATION:
  OPERATING SYSTEM: MS DOS v6.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE DESCRIPTION: SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                      NAME: Kenley K. Hoover
REGISTRATION NUMBER: 40,302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 1830121 base pairs
                                                                                                    FILING DATE: 23-Aug-2000
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: 310-309-8439 INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: nucleic acid
STRANDEDNESS: double
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Best Local Similarity 74.8%;
Matches 794; Conservative
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391812 GTAAATGCGCTAGAACAACGCCTTGAAGATATTATTACACCAATGGATGTATCTATTATC 391871
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            391932 AACAAAAAAGGGGTTATTATCTTGACGGAGAACGCCAAAAAGAGGGGTTTTGATAACGAA 391991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACAAGAAAAGCGGCCTCTATGAAGATGGCGTGCGC---AAAGACCGTCTGGACAACAAC 1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Uwen muster Hamilton O. Smith Hamilton O. Smith J. Crapy Venter TITLE OF INVENTION: The Nucleotide sequence of the Haemophilus influenzae Rd Genome, Fragments Thereof, and Uses Thereof
                          391332 TGTGCGCAGACAAAAATATTCCGATTCGTATTGGTGTAAATGCAGGCTCTTTAGAAAAA
                                                                                                                                                                                                             391452 CATGTAGAAATTCTAGATCGTCTTAACTTCGATCAGTTTAAAGTGAGCGTAAAAGCCTCC
                                                                                                                                                                                                                                                                             391692 CCTGTAGAGGGAAATCAAAGTCGGTTTTGATATTTTGAAATCTTTACGGATTCGTTCAAGA
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                                                                                                                  TGTGCGCGCGATAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCGCTGGAAAAA
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                                                                                          GATCTGCAAGAAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCTGCCATGCGT
                                                                                                                                                                                   490 CATGTTGATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTGAAAGCGTCT
                                                                                                                                                                                                                                                                                                                                                                      670 TTAGGTCTGCTGCTGTCTGAAGGCATCGGCGACACGCTGCGCGTATCGCTGGCGGCCGAT
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RADBRESSES: Human Genome Sciences,
STREET: 9410 Key West Avenue
CITY: Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 20850
COMPUTER READABLE PORM:
MEDIUM TYPE: 3 1/2 inch diskette
COMPUTER: Dell Pentium
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Patent No. 6528289
GENERAL INFORMATION:
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Owen White
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US-09-643-990A-1
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                            S-Gyrence 1, Application US/09557884
Sequence 1, Application US/09557884
Patent No. 6506581
GENERAL INFORMATION:
APPLICANT: Fleischmann et al.
TITLE OF INVENTION: The Nucleotide sequence of
TITLE OF TAVENTION: The Haemophilus influenzae Rd Genome, Fragments
Thereof, and Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           250 GTGGCTGACATCCCACTTCGCATTGCGCTGAAAGTAGCGGAATACGCCGTCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGACGATGGACGCGCAGAAGCGTTCAAACTCATCAAACAGCAGGTTAACGTGCCGCTG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          265; Indels
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Pred. No. 1.4e-184;
                                                                                                                                                                                                                                              ADDRESSEE: Human Genome Sciences, Inc. STREET: 9410 Key West Avenue CITY: Rockville STATE: MD COUNTRY: USA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/557,884
FILING DATE: 25-Apr-2000
CLASSIFICATION: «Unknown»
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                              ZIP: 20850
COMPUTER READABLE FORM:
MEDIUM TYPE: 3 1/2 inch diskette
COMPUTER: Dell Pentium
OPERATING SYSTEM: MS DOS V6.22
SOFTWARE: ASCII Text
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: Michelle S. Marks
REGISTRATION NUMBER: 41,971
REFERENCE/OCKET NUMBER: PB186P3
TELECOMMUNICATION INFORMATION:
TELEPHONE: 301-309-8504
INFORMATION FOR SEQ 1D NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 08/476,102
FILING DATE: JUN-5-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 1830121 base pairs
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STRANDEDNESS: double
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                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS
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                                                                                                                                                                                                   NUMBER OF SEQUENCES:
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Best Local Similarity
                09-557-884-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-557-884-1
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 CCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACAGAC 120
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                      CCTATTGGCGGATGGTCCCATTGCTGTCCAATCTATGACGAATACGCGCACGACGAT
                                                                                             AAAGCGTCTGACGTCTTCCTCGCTGTTGAGTCTTATCGTTTGCTGGCAAAACAGATCGAT
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                                                                                                                            GACAACAACGATATGATGACCAGCTGGAAGCACGCATTCGTGCGAAAGCCAGTCAGCTG 1077
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                                                       961 ACCGGCGCCACAAGAAAAGCGGCCTCTATGAAGATGGCGTGCGC---AAAGACCGTCTG
                                                                                        1 ATGCATAACCAGGCTCCAATTCAACGTAGAAAATCAACACGTATTTACGTTGGGAATGTG
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OTHER INFORMATION: /gene= "aarC"
OTHER INFORMATION: /note= "Similar to E. coli GcpE protein listed
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                                                                                                                                                                                                                                                                                                              Sequence 4, Application US/09170187
Patent No. 6383745
GENERAL INFORMATION:
APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                               3: Medlen & Carroll, LLP
220 Montgomery Street, Suite 2200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY AGENT INFORMATION:
NAME: Carroll, Peter G.
REGISTRATION NUMBER: 32,837
REFERENCE/DOCKET NUMBER: CASE-02443
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 705-8410
TELEPHONE: (415) 397-8338
INFORMATION FOR SEQ ID.NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBW PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Pacentin Release #1.0, Ve:
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/170,187
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY: United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/827,190
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1345 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: San Francisco
STATE: California
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US-09-170-187-4
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Length 1345; Indels 234

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594 480 654 540 714 900 774 999 834

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NAME/KEY: CDS
COCATION: 175..1272
OTHER INFORMATION: /Gene= "aarC"
OTHER INFORMATION: /note= "Similar to E. coli GcpE protein listed by GenBank."
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                                                                                                                                                                                                                                                                                   0; Mismatches 274;
                                                                                                                                                                                                                            56.4%; Score 631.6; DB 2; 74.5%; Pred. No. 2.4e-189;
     MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                 Local Similarity 74.5
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Patent No. 5858367
GENERAL INFORMATION:
APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/827,190
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CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: CARTOIN PEEFER G.
REFERENCE/DOCKET NUMBER: 32,837
REFERENCE/DOCKET NUMBER: CASE
TELECOMMUNICATION INFORMATION:
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CORRESPONDENCE ADDRESS:
CARDESSEE: Medlen & Carroll,
STREET: 220 Montgomery Street
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TELEFAX: (415) 397-8338
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 1345 base pairs
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STRANDEDNESS: double
TOPOLOGY: linear
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COMPUTER READABLE FORM:
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US-08-827-190-4
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MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: COMPUTER: Patentin PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/170,187
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Best Local Similarity 100.0%; Pred. No. 6.4e-309;
Matches 1010; Conservative 0; Mismatches 0;
CORRESPONDENCE ADDRESS:
ADDRESSEE: Medlen & Carroll, LLP
STREET: 220 Montgomery Street, Suite 2200
                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/827,190
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Carroll, Peter G.
REGISTRATION NUMBER: 32,837
REFERENCE/DOCKET NUMBER: CASE-02443
TELECOMEONICATION INFORMATION:
TELECHONE: (415) 705-8410
TELECHONE: (415) 397-8338
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
                                                                CITY: San Francisco
STATE: California
COUNTRY: United States of America
ZIP: 94104
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TYPE: nucleic acid
STRANDEDNESS: double
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                                                                                                                                                                                                                                                                                                      FILING DATE:
CLASSIFICATION:
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Patent No. 6383745
GENERAL INFORMATION:
APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES: 13
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Sequence 1270, Ap Sequence 1336, Ap Sequence 1039, Ap Sequence 7, Appli Sequence 7, Appli Sequence 6, Appli Sequence 1217, Appli Sequence 1217, Appli Sequence 1210, Appli Sequence 12207, Appli Sequence 12135, Appli Sequence 12388, Appli Seque

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Sequence

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TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS:
ADDRESSEE: Medlen & Carroll, LLP
STREET: 220 Montgomery Street, Suite 2200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 90.3%; Score 1010; DB 2; Length 1010; Best Local Similarity 100.0%; Pred. No. 6.4e-309; Matches 1010; Conservative 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: United states

ZIP: 94104

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/827,190
FILING DATE:
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Carcol, Peeter G.
REGISTRATION NUMBER: 32,837
REFERENCE/DOCKET NUMBER: 32,837
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 39-8338
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARATTERISTICS:
LENGTH: 1010 base pairs
                                                   US-08-998-416-1039
US-09-400-742-7
US-08-618-651A-7
US-09-215-252-6
US-09-311-731A-121
US-09-252-991A-3372
US-09-252-991A-3309
US-09-252-991A-13309
US-09-252-991A-12327
US-09-252-991A-12357
US-09-252-991A-12357
US-09-252-991A-12357
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US-09-620-312D-766
US-08-779-764A-1
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STATE: California
COUNTRY: United States of America
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MOLECULE TYPE: DNA (genomic)
TYPE: nucleic acid
STRANDEDNESS: double
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Sequence 6121, Ap
Sequence 6131, Ap
Sequence 6339, Ap
Sequence 6251, Ap
Sequence 6251, Ap
Sequence 9, Appli
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Sequence 1, Appli
Sequence 6209, Ap
Sequence 309, App
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Sequence 1, Appli
Sequence 1017, Ap
Sequence 14212, A
Sequence 1295, Ap
                                                                                           November 23, 2003, 13:55:31; Search time 83 Seconds (without alignments) 5950.695 Million cell updates/sec
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/cgn2_6/ptodata/1/ina/5B_COMB.seq:*
/cgn2_6/ptodata/1/ina/6A_COMB.seq:*
/cgn2_6/ptodata/1/ina/6A_COMB.seq:*
/cgn2_6/ptodata/1/ina/PcTUS_COMB.seq:*
/cgn2_6/ptodata/1/ina/PcTUS_COMB.seq:*
           GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
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US-09-252-991A-1295
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US-09-170-187-10
US-09-252-991A-6420
US-09-252-991A-6131
US-09-328-991A-6339
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Maximum Match 100%
Listing first 45 summaries
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Best Local Similarity 100.0%; Pred. No. 7.7e-239;
Matches 1010; Conservative 0; Mismatches 0;
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            CGTTCGCGAGGGATCAACTTCATCGCCTGCCCGACCTGTTCGCGTCAGGAATTTGATGTT 840
                                                      GCGGCCGATCCGGTCGAAGAGATCAAAGTCGGTTTCGATATTTTGAAATCGCTGCGTATC
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/mol_type="genomic DNA"
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Search completed: November 23, 2003, 15:07:56
Job time : 4356 secs

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        GGCGTCGATTGTCTGCGTATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATG
                                               GTGCCGCTGGTGGCTGACATCCACTTCGACTATCGCATTGCGCTGAAAGCTAGCGGAATAC
                                                                                 GTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGT
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Patent: JP 2001523997-A 6 20-NOV-2001;
CASE WESTERN RESERVE UNIVERSITY
OS Escherichia coli
PN JP 2001523097-A/6
PD 20-NOV-2001
PD 20-NOV-2001
PF 27-MAR-1998 JP 1998546016
PF 27-MAR-1997 US 08/827190
PI PHILIP N RATHER
PC C12Q1/68,C07K14/24
CC Methods for screening for antimicro
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JP 2001523097-A/6.
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                                                                                                       ATCGGTACGGTTAACGCGCTGGAGCAACGCCTGGAAGATATCATCACTCCGATGGACGTT
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  AACAACGATATGATCGACCAGCTGGAGGCACGCATTCGTGCGAAAGCCAGTCAGCTGGAC
             AACAACGATATGATCGACCAGCTGGAAGCACGCATTCGTGCGAAAGCCAGTCAGCTGGAC
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Sequence 8 1
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Rather,P.N.
Methods for screening for antimicrobials utilizing compositions thereof
Patent: US 5858367-A 8 12-JAN-1999;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unclassified.
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                                                                                            GCCATGCGTCATGTTGATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTG
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Pred. No. 7.7e-239;
0; Mismatches 0;
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                                                                                                                                                        /translation="mlsifkpaphkarlpaabidptyrrlrwqiflgiffgyaayylv
Rkwealamyylveqqefsrgdigfealsgisiaygfskeimgsvsbrsknervelpaglil
Raavklemgfvpwatssiavkeflelgwfqagwpppcgrtmyhwksqkerggivsv
WNCAHNVGGGIPPLLFLLGMAWFNDWIAALYNPAFCAILVALFafeakkeptqQSGLP
PIEEYKNDYPDDYNEKAEQELTAKQIFMQYVLPNKLLWYIAIANVFVYLLRYGILDWS
PTYLKEVKHFALDKSSWAYFFYEYAGIPGTLLCGWMSDKVFRGNRGATGVFFWTLVTI
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="ECs3125"
/note="similar to GLPT ECOLI gi|1788573 percent identity
99 in 452 aa (Conserved in E.coli K-12)"
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IGPDYHMLIEETSQPGNIKLTGMVQDAQQNKLVVHPYTVRSDKLPEYTTDVNQLYDAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="mkltlknlsmaimmstivmgssamaadsnekiviahrgasgylp
EHTLPAKAMAYAQGADYLEQDLVMTKDDHLVVLHDHYLDRVTDVADRFPDRARKDGRY
YAIDFTLDEIKSLKFTEGFDIENGKKVQTYPGRPPMGKSDFRVHTFEEEIEFVQGLNH
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/gene="EC83124"
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FSYTRDFFAYSKQEKNIFTFDNSKFVDPKEKEGLMVQHSNGQLVITGKYCPEGVQTAF
TQEQYDKLIRYINIFFTFPKLE"
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EFAADYEPYTLTFTRGENNEGILSVESKEGFISQRTINLNEYETAINIINEHVIKENI
HNTVQSPTEKYISKINSSDKPYKTSSKESIKSQLYSDQRNIQTCYYILRKNTEWYKYA
  /gene="EC83126"
4420. .6048
                                                       4420.
                                                                                                         ATI VYWMNPAGNPTVDMI CMI VIGFLI YGPVMLIGLHALELA PKKAAGTAAGFTGLFG
YLGGSVAASA I VGYTVDFFGWDGGFMVMI GGSILAVILLI VVMI GEKRRHQELLQKRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (2789. .4147)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (2789. .4147)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YNKAGVNGLFTDF PDKAVKFLNKE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STGKNIGIYPEIKAPWFHHQEGKDIAAKTLEVLKKYGYTGKDDKVYLQCFDADELKRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (1708. .2784)
                                                                                                                                                                                                                                                                                                                          /product="sn-glycerol-3-phosphate permease"
/protein_id="BAB36548.1"
/db_xref="GI:13362595"
                                                                                                                                                                                                                                                                                                                                                                                                          /evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="ECs3125"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
/product="glycerophosphodiester phosphodiesterase"
/protein_id="BAB15547.1"
/db_xref="G1:13362594"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="similar to GLPQ_ECOLI
99 in 358 aa (Conserved in E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               translation="MPNTSIHLSRCNILQNNKLQPTEIYKESQQTAKLEFFCDEFLKI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="hypothetical protein"
/protein_id="BAB36546.1"
/db_xref="G1:13362593"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              414. .1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'gene="ECs3124"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene="ECs3123"
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/strain="0157:H7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'gene="ECs3123"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      db_xref="taxon:83334"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                organism="Escherichia coli 0157:H7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ocation/Qualifiers
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gi|1788572 percent identity .coli K-12)"
Query Match
Best Local Similarity
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K-small subunit"

(protesin id="BAB36551.1"

/protesin id="BAB36551.1"

/db_xref="GI:1336598"

/translation="MADTSFENCIKCTYCTTACPVSRVNPGYPGPKQAGPDGERLRLK

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SYSTPFAPIVNTATSLKPVRQLLDAALKIDHRTLPKYSFGTERMYRSVAAQQAQYK

DGVAFPHGCFVNYNHPGLGKDLIKVLNAMGTGYQLLSKEKCGVPLIANGFTDKAKK

DQVAFPHGCFVNYNHPGLGKDLIKVLNAMGTGYQLLSKEKCGVPLIANDHIELATRWLWR

KLDEGKTLPLKPLFLKVVYHTPCHMERMGWTLYTLELLRNIPGLELTYLDSQCCGIAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MKTRDSQSSDVIIIGGGATGAGIARDCALRGLRVILVERHDIAT
GATGRNHGLLHSGARYAVTDAESARECISENQILKRIARHCVEPTNGLFTILPEDDLS
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AKEHGAVILTAHBVTGLIREGATVCGVRVRNHLTGETQALHAPVVVNAAGIWQQHIAE
YADLRIRMFPAKGSLLIMDHRINQHVINRCRKPSDADILVPGDTISLIGTTSLRIDYN
BIDDNRVTBAESVDILLREGEKLAPVMAXTRILRAYSGVRPLVASDDDPSGRNVSRGIV
LLDHAERDGLDGFITITGGKLMTYRLMAEMATDAVCRKLGNTRPCTTADLALPGSQEP
ABVTLRKVISLPAPLRGSAVYHGDRTPAMLSEGRLHRSLVCECEAVTAGEVQYAVEN
LNVNSLLDLRRRTRVGMGTCQGELCACRAAGLLQRFNVTTSAQSIEQLSTFLNERWKG
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QGSVELPHQRITPLGTLRSTWLSSPEVPWPLPAKKICVVGISGLMDFQAHLAAASLR
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LMPACFGLADDKLMRMLNEKLPCSKMLLPTLPPSVLGIRLQNQLQRQFVRQGFWMPG
DEVKKYTCKNGVVNELWTRNHADIFLRFAVLASGSFFSGGLVAERNGIREFILGLD
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VLQTATRGEWYKGDFFAPQPMQQFGYTTDQTLRPSQAGQTIENLFTIGSVLGGFDPIA
                                      /note="similar to YFAD_ECOLI gi|1788577 percent identity 94 in 303 aa but differs at C-ter (Conserved in E.coli K-12)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="similar to GLPC_ECOLI gi|1788576
100 in 396 aa (Conserved in E.coli K-12)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /evidence=not_experimental
/transl_table=11
/product="anaerobic sn-glycerol-3-phosphate dehydrogenase
membrane anchor_subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="ECs3127"
6038. .7297
                                                                                                                                              8677. .9603
/gene="ECs3129"
                                                                                                                                                                                                                                                                                                                                          TYGFKKENYPTSQAIGAPLFRQIEESGADLVVTDCETCKWQIEMSTSLRCEHPITLLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="ECs3128"
7294. .8484
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                                                                                                                                                                                                                           /gene="ECs3129"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="anaerobic sn-glycerol-3-phosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="EC83128"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VQPIAWGDALRESEFTRWVYQGLCGLEKEQKDAL"
codon_start=1/
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large subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/evidence=not_experimental
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100 in 542 aa (Conserved in E.coli K-12)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon start=1/
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/db_xref="GI:13362596"
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97.7%; 98.6%;

Score 1093.4; DB 1; Pred. No. 2.2e-259;

Length 296827;

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Query Match
Best Local Similarity
Matches 1103; Conserv
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                                                                                                                                                     CGTTCGCGAGGGATCAACTTCATCGCCTGCCCCGACCTGTTCGCGTCAGGAATTTGATGTT
                                                                                                                                                                                                                                     GCGGCCGATCCGGTCGAAGAGATCAAAGTCGGTTTCGATATTTTGAAATCGCTGCGTATC
                                                                                                                                                                                                                                                                                                                    GCCATTGGTTTAGGTCTGCTGCTGTCTGAAGGCATCGGCGACACGCTGCGCGTATCGCTG
                                                                                                                                                                                                                                                                                                                                                                                               AAAGCGTCTGACGTCTTCCTCGCTGTTGAGTCTTATCGTTTGCTGGCAAAACAGATCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCATGCGTCATGTTGATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGAAAAAGATCTGCAAGAAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGGTTGACTGTGCGCGCGATAAAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGTCGATTGTCTGCGTATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGCCGCTGGTGGCTGACATCCACTTCGACTATCGCATTGCGCTGAAAGTAGCGGAATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTATCCGTACCGACGATGGACGCGGCAGAAGCGTTCAAACTCATCAAACAGCAGGTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGCATAACCAGGCTCCAATTCAACGTAGAAAATCAACACGTATTTACGTTGGGAATGTG
TCGATTATCGGCTGCGTGGAATGGCCCAGGTGAGGCGCTTGGTTTCTACACTCGGCGTC
                                                                                  ATCGGTACGGTTAACGCGCTGGAGCAACGCCTGGAAGATATCATCACTCCGATGGACGTT
                                                                                                                                CGTTCGCGAGGTATCAACTTCATCGCCTGTCCGACCTGTTCGCGTCAGGAATTTGATGTT
                                                                                                                                                                                                                                                                                         GCCATTGGTTTAGGTCTGCTGCTGTCTGAAGGCATCGGCGACACGCTGCGCGTATCACTG
                                                                                                                                                                                                                                                                                                                                                                        AAAGCGTCTGACGTCTTCCTCGCTGTTGAGTCTTATCGTTTGCTGGCAAAACAAATCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCATGCGCCATGTTGATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCTCCGTACCGACGATGGACGCGGCAGAAGCGTTCAAACTCATCAAACAGCAGGTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGCATAACCAGGCTCCAATTCAACGTAGAAAATCAACACGTATTTACGTTGGGAATGTG
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KYADVLLPETSFMERWIIGETWGTASYLILSEKEIEPDFERRTDYDMLKDVAKKLGVE
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QNNPFPTPSGKIEIFSKELFDWQDPEIFALSHYVPAFSQFEDKLTAKYPLQLITWRGK
NRANSTQYANPWLQEVQTQKLWLNPQDAKQRGISEGDSVKIYNDRGVSIIPVEITPRI
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98.6%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16;
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Complete nucleotide sequence of the prophage VT2-Sakai carrying the verotoxin 2 genes of the enterohemorrhagic Escherichia coli O157:H7 derived from the Sakai outbreak
Genes Genet. Syst. 74 (5), 227-239 (1999)
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Hayashi,T.
Direct Submission
Submitted (26-JUN
                                                                                                              Complete genome sequence of enterohemorrhagic Escherichia coli 0157:H7 and genomic comparison with a laboratory strain K-12 DNA Res. 8 (1), 11-22 (2001)
                                                                                                                                                                                Hayashi,T., Makino,K., Ohnishi,M., Kurokawa,K., Ishii,K.,
Yokoyama,K., Han,C.-G., Ohtsubo,E., Nakayama,K., Murata,T.,
Tanaka,M., Tobe,T., Iida,T., Takami,H., Honda,T., Sasakawa,
Ogasawara,N., Yasunaga,T., Kuhara,S., Shiba,T., Hattori,M.
                                                                                                                                                                                                                                                                                                    Complete nucleotide sequence of the prophage VT1-Sakai carrying Shiga toxin 1 genes of the enterohemorrhagic Escherichia coli O157:H7 strain derived from the Sakai outbreak Gene 258 (1-2), 127-139 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           enterohemorrhagic Escherichia coli (
Escherichia coli K-12 strain MG1655
Syst. Appl. Microbiol. 23 (3), 315-3
                                   Ohnishi,M.,
Hayashi,T.
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Shinagawa,H.
                                                                                                                                                                                                                                                                                                                                                                                      Yamamoto, K.,
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C.H., Kurokawa,K.,
,K., Hayashi,T., Ya
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                                                 Yasunaga, T.,
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Hattori,M. and
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, Abe, H., Iida,
Sasakawa, C. ar
                                                   Shinagawa
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/trans1_table=11
/product="putative membrane protein"
/protein_id="AAG57626.1"
/protein_id="AAG57626.1"
/db_xref="G1:12516910"
/translation="MNTEATHDQNEALTTGARLRNAREQLGLSQQAVAERLCLKVSTV
RDIEEDKAPADLASTFLAGYIRSYARLVHIPEEBLLPGLEKQAFURAAKVAPMQSFSL
GKRRKKRDGWLMTFTWLVLFVVIGLSGAWWWQDHKAQQEEITTWADQSSXELSSNSEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Residues 1 to 143 of 143 are 100.00 pct identical to residues 1 to 143 of 143 from Escherichia coli K-12 Strain MG1655: B2518"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAKYTGORFITNUVUMMGMGEPLLNINNUVPAMEIMLDDEGFGLSKRRVTISTSGVVPA
LDKLGDMIDVALAISLHAPNDEIRDEIVPINKXXNXETELAAVREXYLEKSNANQGRVT
IEYVMLDHVUBGTEHAHDLAELLKDTPCKINIEFMPFPFAAPYGRSSNSRSIDRFSKVL
MSYGFTTIVRKTRGDDIDAACGQLAGDVIDRTKRTLRKRMQGEAIDIKAV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="orf, hypothetical protein"
/product="orf, hypothetical protein"
/protein_id="AAG57627.1"
/db_xref="GI:12516911"
/db_xref="GI:12
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="synonym: Z3779" complement(1231. .2244) /gene="yfgA"
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complement(2529, .3683)
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DTAATPAPTAATTPDGAAPLPTDQAGVTTPVADPNALVMNFTADCWLEVTDATGKKLF
SGMQRKDGNLNLTGQAPYKLKIGAPAAVQIQYQGKPVDLSRFIRTNQVARLTLNAEQS
                                                                                                                                                   /trānblation="maiertfsiikpnavaknvignifarfeaagfkivgtkmlhltv
EQARGFYAEHDGKPFPDGLVEFMTSGPIVVSVLEGENAVQRHRDLLGATNPANALAGT
                                                                                                                                                                                                                                            /product="nucleoside diphosphate kinase"
/protein_id="AAG57628.1"
/db_xref="GI:12516912"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /function="enzyme; Nucleotide biosynthesis: Purineribonucleotide biosynthesis"
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note="0-island #106; Region of the EDL933 chromosome
                                                                                                   LRADYADSLTENGTHGSDSVESAAREIAYFFGEGEVCPRTR"
                                                                                                                                                                                                                                                                                                                                                                                                                    transl_table=11/
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/transl_table=11
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/db_xref="GI:12516909"
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coli K-12 Strain
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/codon start=1
/transI_table=11
/product="putative dimethyl sulfoxide reductase subunit A"
/protein_id="AAG57632.1"
/db_xref="G:12516916"
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SPEVTAPVADKVVPTCSTFDCGGKCDIRAHMEDGVVTQITTLPDNELDEQMPIMRACV
                                                                                                                                                                                                                                                                                                                                                                      /function="putative enzyme: Not classified"
/note="Residues 25 to 792 of 793 are 43.59 pct identical
to residues 3 to 794 of 785 from GenPept 118 :
gi|1787121|gb|AAC73980.1| (AE000191) anaerobic dimethyl
sulfoxide reductase subunit A [Escherichia coli]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /function="putative enzyme; Not classified"
/note="Residues 4 to 134 of 145 are 61.83 pct identical
residues 57 to 186 of 205 from GenPept 118 :
gi|1787122|gb|AAC73981.1| (AE000191) anaerobic dimethyl
sulfoxide reductase subunit B [Escherichia coli]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MHELPLMAFTLLLQASVGMTLWLAFLHRHILITSSARPVMRPPL
LLAFLAGAVGLLISTLHIGYPLNAMHALSHFSSSWLSREIIFGALYLALLGLSTLLVM
LRKGGMQLLHLAAVVGIVDVFCMAQVIHTSIITWQHYTLIMFLGTVGILGSALVA
VFRISGILPQIDALRNGCVLVIALLVLLRLLVQPLWIGDLTANAMQIATLPHAPLAML
GQLKPILTLSWGISVIGMMFFAVGGCKKUNIPAALFGSVMLVGSEVMLREVFFSIG"
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/note="Residues 2 to 272 of 273 are 25.26 pct identical to
residues 6 to 276 of 286 from GenPept 118 :
gi|5002126|gb|AA037317.1|AF135170 8 (AF135170) dimethyl
sulfoxide reductase subunit C [Yersinia pestis]"
                               RGRGYRKFVYHPDRLKYPMKRVGKRGEGKFERISWDEATTLIADNLKRITQQYGPASR
YVHVGTAVXGGTFSGDAMARRLLNLTGGYLEYYHSVSLGNTAAATPYTYGVAASGNSM
DTLLDTKLVILMGHNPTETIFGHTNYYFQKMKQNGTRFIVVDPRYSDTVSSLADQWIP
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/gene="Z3785"
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DKCVGCGYCAWSCPYGAPQMNEQTGXMSKCDPCIDLQAKGEQPICVATCPLGAIKFGP
IDELAEKYGDVSDVKGLPDSSITQPNLVIKPHQGAEKEASHHA"
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/db xref=_101:12516913"
/translation="MLWHKEQGITAIAIDLSQAKAWERALLLLNECLRQYGEEGWSVV /translation="MLWHKEQGITAIAIDLSQAKAWERALLLLNECLRQYGEEGWSVV SPHTSEVNVSRRRLFHYQRADYQMTQIQPGLRRLHYLWPQISDARPMMDPQKCQLCGA
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/gene="Z3784"
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/gene="Z3783"
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/gene="Z3783"
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VCKTCQKSFLTFQQNAQNCLYCQRHRYGMRTP"
LLPTTDNALMDAMMYVIISENLHDKTFIDTYTLGFDENSMPEGVPANESLVAYLFGAK
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/protein_id="AAG57631.1"
/db_xref="GI:12516915"
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/protein_id="AAG57630.1"
/db xref="GI:12516914"
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complement (4405. .4983)
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/transl_table=
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CGTTCGCGAGGATCAACTTCATCGCCTGCCCGACCTGTTCGCGTCAGGAATTTGATGTT
                                                                     GCGGCCGATCCGGTCGAAGAGATCAAAGTCGGTTTCGATATTTTGAAATCGCTGCGTATC
                                                                                                                                                  GCCATTGGTTTAGGTCTGCTGCTGTCTGAAGGCATCGGCGACACGCTGCGCGTATCGCTG
                                                                                                                                                                                                                               CAGCCGTTGCATCTGGGGATCACCGAAGCCGGTGGTGCGCGCAGCGGGGCAGTAAAATCC
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                                                                                                                         GCCATTGGTTTAGGTCTGCTGCTGTCTGAAGGCATCGGCGACACGCTGCGCGTATCACTG
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/protein id="AAK53460.1"
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KSAIGLGLLLSEGIGDTLRVSLAADPVBEIKVGFDILKSLRIRSRGINFIACPTCSRQ
EFDVIGTVNALEGRLEDIITPMDVSIIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGV
RKDRLDNNDMIDLEARIRAKASQLDEARIDVQQVEK"
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,ynthase"
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98.6%;
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Perna, N.T., Plunkett, G. III, Burland, V., Mau, B., Glasner, J.D., Perna, N.T., Plunkett, G. III, Burland, V., Mau, B., Glasner, J.D., Rose, D.J., Mayhaw, G.F., Evans, P.S., Gregor, J., Kirkpatrick, H.A., Posfai, G., Hackett, J., Klink, S., Boutin, A., Shao, Y., Miller, L., Grotbeck, E.J., Davis, N.W., Lim, A., Dimalanta, E., Potamousis, K., Apodaca, J., Anantharaman, T.S., Lin, J., Yen, G., Schwartz, D.C., Welch, R.A. and Blattner, F.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Perna,N.T., Plunkett,G. III, Burland,V., Mau,B., Glasner,J.D., Rose,D.J., Mayhew,G.F., Evans,P.S., Gregor,J., Kirkpatrick,H.A., Posfai,G., Hackett,J., Klink,S., Boutin,A., Shao,Y., Miller,L., Grotbeck,E.J., Davis,N.W., Lim,A., Dimalanta,E., Potamousis,K., Apodaca,J., Anantharaman,T.S., Lin,J., Yen,G., Schwartz,D.C., Welch,R.A. and Blattner,F.R. Genome sequence of enterohaemorrhagic Escherichia coli 0157:H7 Nature 409 (6819), 529-533 (2001)
                                                                                                                                                                                                                                                                                                                                 Submitted (22-OCT-2000) Laboratory Wisconsin, 445 Henry Mall, Madison, Location/Qualifiers
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Escherichia coli O157:H7 EDL933
Bacteria; Proteobacteria; Gammaproteobacteria;
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/Function="orf; Unknown function"
/note="Residues 1 to 372 of 372 are 100.00 pct
to residues 1 to 372 of 372 from Escherichia co
Strain MG1655: B2515"
/codon_start=1
                                                                                                                                                                          /db_xref="taxon:155864"
/note="enterohemorrhagic"
complement(86. .1204)
                                                                                                                    complement (86. .1204)
                                                                                                                                                                                                                                                                           /organism="Escherichia
/mol_type="genomic DNA"
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/proteein id="AAN81326.1"
/db_xref="GI:26109124"
/tb_xref="GI:26109124"
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/transl_table=11
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/note="Bscherichia coli K-12 ortholog: b2330; Escherichia
/oli 0157:H7 ortholog: z3593"
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_number="2.1.1.
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SOURCE
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AY033515
                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (27-APR-2001) Institut fuer Organische Chemie und Biochemie, Lehrstuhl III, Technische Universitaet Muenchen, Lichtenberg Strasse 4, Garching D-85747, Germany
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 (bases 1 to 1119)
Rohdich, F., Hecht, S., Adam, P.,
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Arigoni, D. and Rohdich, F.
Studies on the nonmevalonate pathway
GcpE (Isgo) protein
Proc. Natl. Acad. Sci. U.S.A. 98 (26)
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Escherichia coli
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1119 bp DNA linear BCT 26-DEC-
Escherichia coli 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
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2,4-cyclodishosphate into 1-hydroxy-2-methyl-2-(E)-butenyl
4-diphosphate, last but one step of the
mevalonate-independent pathway for isoprenoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (ispG)
                                                                                biosynthesis"
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/transl__table=11
                                                                                                                                                                                                                                                       'gene="ispG"
                                                                                                                                                                                                                                                                                                 /mol_type="genomic D
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                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                      note="IspG"
                                                                                                                                                                                                                                                                                                                                                           organism="Escherichia"
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Bacher, A.,

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GDDHSAQAVHTTVSQSLEKAIGAGELSPRDQALVTDMWEHLFQQASQQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QLQDLSRKDDGWLLNFAGDQHATHSVVVLANGHQISGFSQTSSLFVYSVAGQVSHIPT
TPELAKLKQVLCYDGYLTPQNPANQHHCIGASYHRGSEETAYSDEDQQQNRQRLIDCF
PQVQWAKEVDVSGKEARCGVRCATRDHLPMVGNVPDYDATLVEYASLAEKKDEAVSAP
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biosynthesis"
/locus_tag="c2872" complement(3981. .4529)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RLARPGSTLATFTSAGFVRRGLØEAGFTMØKRKGFGRKREMLGGVMEQTLPFPCSTPW
FNRMGSNKØEAAI 1GGGIASALLSLALLRRGMÖVTLYCADEAPALGASGNRØGALYPL
LSKHIDEALMR FSINAFTFARR FYDLLPVKFDHJWCGVTYOLGWDEKSQHK LAQMLSMDL
PAELAVAVEANAVEQITGVATNCSGITYPØGGWLCPAELTRNVLELAQQQGLØIHYQH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /trānslation="MRSLTHIAKIEPPVRRVTYVKHYSIQPANLEFNAEGTPVSRDF
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FREAHPPAQLQAGNEHFISFEKFPLTRADLALAHOHWPELAPWAEGLQAGWPDLDLPGGAED
LLLDEGHVTLDLWFGDINELTSQLDDSLNQKVDAWFLDGFAPAKNPDMWTQNLFNAMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Escherichia coli K-12 ortholog: b2324; Escherichia
coli 0157:H7 ortholog: z3587"
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LGAAGVQEAÍYSLLMLEHGFÍAÞSÍNÍEELDEQAAGLNÍVTETTDRELTTVMSNSFGF
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                                                                                                               complement (3981. .4529)
                                                                                                                                                                                                                                                                                                                                                                                                                  coli 0157:H7 ortholog: z3588"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (3669. .3947)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (3669. .3947)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VYDDLFMFAALGSRGLCSAPLCAEILAAQMSEEPIPMDASTLAALNPNRLWVRKLLKC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /trans1_table=11
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1482. .3548
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coli O157:H7 ortholog: z3586"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="fabB"
/locus_tag="c2869"
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                                                                           gene="yfcM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                          note="Escherichia coli K-12 ortholog: b2325;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene="yfcL"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     locus tag="c2870" function="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ocus_tag="c2869"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 _tag="c2871"
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/product="Hypothetical protein yfcA"
/protein id="AAN81323.1"
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AGMSSPANALATNKLQACGGSISATIYFIRRKVVSLSDQKLNIAMTFVGSMSGALLVQ
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                  /translation="mmagn11GQLFRVTTFGESHGLALGC1VDGVPPG1PLTEADLQH
DLDRRRPGTSRYTTQRREPDQVKILGGVPFGVTTGTS1GLLEATDQRSQDYSA1KDV
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MGDLPLEIKDWSQVEQNPFFCCPDPDKIDALDELMRALKKEGDS1GAKKYTVVASGVPAG
LGEPVFDRLDADIAHALMSINAVKGVEIGDGFDVVALRGSQNRDEITKDGFQSNHAGG
LIGGISSGQQIIAHMALKPTSSITVPGRTINRFGEEVEMITKGRHDPCVGIRAVPIAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /trānslation="MNKTAIALLALLASSASLAATPWQKITQPVPGSAQSIGSFSNGC
IVGADTLPIQSEHYQVMRTDGRRYFGHPDLVWFIQRLSRQVSNLGMGTVLIGDMGMPA
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FSLIKLAAQDKDVTRIFVNPAIKQQLCLDAGTDRDWLRKVRPWFQHRAHMHVRLRCPA
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/note="Escherichia coli K-12 ortholog: b2327; Escherichia
coli 0157:H7 ortholog: z3590"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /locus_tag="c2875" complement(6166. ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /locus_tag="c2874" complement(5338. .6162)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="Escherichia coli K-12 ortholog: b2326; Escherichia
coli O157:H7 ortholog: z3589"
                                                                                                                                                                                                                                                                                                                                                    /function="enzyme; Amino acid biosynthesis: Chorismate"
/note="Escherichia coli K-12 ortholog: b2329; Escherichia
coli 0157:H7 ortholog: z3592"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (6166. .7254)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DSLECEDQPLPPPGDGCGAELQSWFEPPKPGTTKPEKKTPPPLPPSCQALLDEHVI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAN81324.1"
/db_xref="GI:26109122"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transī
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /function="enzyme; Murein sacculus, peptidoglycan"
/note="Escherichia coli K-12 ortholog: b2328; Escherichia
coli 0157:H7 ortholog: z3591"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (5338. .6162)
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LQNYYHTPELTAEQFPWPEALN"
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nrivfahgfyasaiheishwciagkarrdlvdfgywycpdgrdaqtqsqfedvevkpq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="Hypothetical protein yfcM"
/protein_id="AAN81322.1"
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/transl_table=11
AMLAIVLMDHLLRQRAQNADVKTDIPRW"
                                                                                                                                                                                                         /protein_id="AAN81325.:
/db_xref="GI:26109123"
                                                                                                                                                                                                                                                                     /product="Chorismate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="aroC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="Penicillin-insensitive
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ocus
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_number="4.2.3.5"
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AAAGCGTCTGACGTCTTCCTCGCTGTTTGAGTCTTATCGTTTGCTGGCAAAACAGATCGAT
                                                                                   GCCATGCGTCATGTTGATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTG
                                                                                                                                                                                                                   GTGGTTGACTGTGCGCGCGATAAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCG
                                                                                                                                                                                                                                           GTGGTTGACTGTGCGCGCGATAAAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCG
                                                                                                                                                                                                                                                                                                GGCGTCGATTGTCTGCGTATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGT
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                                                              GCCATGCGTCATGTTGATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTG
                                                                                                                                            CTGGAAAAAGATCTGCAAGAAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCC
                                                                                                                                                                            CTGGAAAAAGATCTGCAAGAAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCT
                                                                                                                                                                                                                                                                                                                                                                                 GTGCCGCTGGTGGCTGACATCCACTTCGACTATCGCATTGCGCTGAAAGTAGCGGAATAC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGT
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(Raarkidglgikhvolsgegwdadrcwafwggykgpkgtkywedlddagrgeldn

Rlmildwyrdtinapaeelgpsolaopkoratky

HTVGRGSERS pvillaldynptgdkeapvyaclygkgittdsgedlirgogywgl

HTVGRGSERS pvillaldynptgdkeapvyaclygkgittdsgesisikgtafmdswksd

MGGAATVTGALAFAIWRGLNKRVKLFLCCADMLISGNAFKLGDITYRNGKKYEVMNT

DAEGRIVTAALGAIDASAQKPEMIIDAATLTGAAKTALGNDYHALFS FDDALAGRLLAS

ASQENEPFWRLPLAEFHRSQLESNFAELNNTGSAAYPAGASTAAGFLSHFVENYQQGW

LHIDCSATYRKAPVEGWSAGATGLGVRTIANLLTA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (11521. .11721)
/gene="yfhJ"
/locus_tag="S2743"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="REP (repetitive extragenic palindromic)
contains 1 REP sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ICQVKKGEKGISHFITEHIAÞFYERRWGGFLRDFKQNRII"
10137. .10170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="putative peptidase"
/protein_id="AAP17894.1"
/db_xref="GI:30042169"
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/function="putative enzyme; Not classified"
/note="residues 1 to 427 of 427 are 92.50 pct identical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="pepB"
/locus_tag="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (10179. .11462)
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Pred. No. 1.3e-260;
0; Mismatches 11;
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REFERENCE
AUTHORS
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                                                                                                                                                                        2 (bases 1 to 300099)

Welch,R.A., Burland,V., Plunkett,G.D. III, Redford,P., Roescl
Rasko,D.A., Buckles,E.L., Liou,S.-R., Boutin,A., Hackett,J.,
Stroud,D., Mayhew,G.F., Rose,D.J., Zhou,S., Schwartz,D.C.,
Perna,N.T., Mobley,H.L.T., Donnenberg,M.S. and Blattner,F.R.
                                                                                                                                                                                                                                                                                            Welch,R.A., Burland,V., Plunkett,G.D. III, Redford,P., Roesct Rasko,D.A., Buckles,E.L., Liou,S.-R., Boutin,A., Hackett,J., Stroud,D., Mayhew,G.F., Rose,D.J., Zhou,S., Schwartz,D.C., Perna,N.T., Mobley,H.L.T., Donnenberg,M.S. and Blattner,F.R. Extensive Mosiac Structure Revealed by the Complete Genome Stof Uropathogenic Escherichia coli Proc. Natl. Acad. Sci. U.S.A. 99 (26), 17020-17024 (2002)
                                                                                                                 Submitted (20-JUN-2002) Genetics Laboratory, University Wisconsin - Madison, 445 Henry Mall, Madison, WI 53706,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Escherichia coli CFT073
Escherichia coli CFT073
                                                                                                                                                                                                                                                                                                                                                                                                                                    Enterobacteriaceae; Escherichia.
1 (bases 1 to 300099)
                                                                                                                                                            Direct Submission
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCGGCGGCAACAAGAAAAGCGGCCTCTATGAAGATGGCGTGCGCAAAGACCGTCTGGAC 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCGATTATCGGCTGCGTGGTGAATGGCCCAGGTGAGGCGCTGGTTTCTACACTCGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCATTGGTTTAGGTCTGCTGCTGTCGGAAGGCATCGGCGACACGCTGCGTGTATCGCTG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCGATTATCGGCTGCTGGTGAATGGCCCCAGGTGAGGCGCTGGTTTCTACACTCGGCGTC
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                      /mol_type="genomic DNA"
/strain="CFT073"
                                        /organism="Escherichia
/mol_type="genomic DNA"
                                                                                 1. .300099
                                                                                               Location/Qualifiers
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                 /translation="MSEQLVTPENVTTKDGKINLLDLNRQQMREFFKDLGEKTFRADQ WKMWYHYCCONFDENTDINKVLRGKLKEVAEIRAPEVVEEQRSSDGTIXMAIAVGDQ RVETVI PEDDRATLCVSSQVGCALECKFCSTADQGFNRNLRVSEIIGCVWRAAKVGAKVTQQR ITNVVMMQMGEPLLNLNNVVPAMEIMLDDFGFGLSKRRVTLSTSGVVPALAKVTQQRINIDVALAISLHAPNDEIRDEIVPINKKYNIETFLAAVRRYLEKSNANQGRVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MNTEATHDQNEALTTGARLRNAREQLGLSQQAVAERLCLKVSTV
RDIEEDKAPADLASTFLRGYIRSYARLVHIPEEELLPGLEKQAPLRAAKVAPMQSFSL
GKRRKKRDGWLMTFTWLVLFVVIGLSGAWWWQDHKAQQEEITTWADQSSAELSSNSEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /trānslation="mhnqapiqrrkstriyvgnvpigdgapiavqsmtntrttdveat
vnqikalervgadivrvydvgapapapkrlivgqivdvapigtydytaitatopriatikvapsgv
DCLRinggnignebrirvyddvapkaipirigvorgsiperddidestybestpoloesty
AMRHVDHLDRDPDPKVSVKASDVFLAVESYRLIAKQIDQPLHLGITEAGGARSGAN
                                                                                                                                                                                                                                                                                                                                                                                  /locus_tag="S2735" complement(2534. .3688)
                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="yfgB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GOSVPLNTSTTTDPATTSTPPASVDTTATNTQTPAVTAPAPAVDPQQNAVVSPSQANV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /locus_tag="S2734" complement(1236. ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (1236. .2249)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RKDRLDNNDMIDQLEARIRAKASQLDEARRIDVQQVGKIIT"
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EFDVIGTVNALEQRLEDIITPMDVSIIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="residues 1 to 372 residues 1 to 372 of 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (82. .1209)
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Location/Qualifiers
                                                                                                                                                                                                                                                                                         residues 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DTAATPVPTAATTPDGAAPLPTDQAGVTTPAADPNALVMNFTADCWLEVTDATGKKLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /locus tag="S2734"
/locus tag="S2734"
/function="putative membrane; Not classified"
/note="residues 1 to 337 of 337 are 80.71 pct
residues 1 to 337 of 337 from Escherichia col
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="hypothetical
/protein_id="AAP17888.
/db_xref="GI:30042163"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (82. .1209)
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I EYVMLDHVNDGTEHAHQLAELLKDTPCK I NL I PWNPFPDAPYGRSSNSR I DRFSKVI
                                                                                                                                   /product="hypothetical
/protein_id="AAP17890.]
/db_xref="GI:30042165"
                                                                                                                                                                                                                                                                                    note="residues 1 residues 1 to 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="putative membra
/protein_id="AAP17889.1"
/db_xref="GI:30042164"
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strain="2457T"
                                                                                                                                                                                                               trans1
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trans1 table=
                                                                                                                                                                                                                                           codon start=1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /protein id="AAP17892.1"
/db_xref="GI:30042167"
/translation="WTESSDYSSVQVFIGVDVGKDTHHAVAINRSGKRLFDKALPNDE
/translation="WTESSDYSSVQVFIGVDVGKDTHHAVAINRSGKRLFDKALPNDE
NKLRSLISDLKOHGQILLVVDQPATIGALPVAVARSEGVLVGYLPGLAMRRIADLHAG
EAKTDVRDAAIIAEAARTLPHALRTLKHADEQIAELSMLCGFDDDLAAQTTQASNRIR
GLLTQIHPAPERVLGPRLEHPAVLDLLQRYPSPEKLASLGEKKLAAQLCKLAPRLGKR
GLADIAQALAEQTVVVPGTNAAAVVLPRLALQLITLAKQRDEVALEVEQRVLAHPLYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /function="IS, phage, Tn; Transposon-related fur
/note="residues 1 to 398 of 398 are 90.95 pct ic
residues 1 to 398 of 398 from GenPept :
-ygb|AAK18438.1|AF348706_127 (AF348706) putative
transposase for IS110 [Shigella flexneri]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /locus_tag="S2738" complement(6534...7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /insertion_seq="ISSf14" complement(6534. .7730)
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complement (3838. .4269)
                    AVVEDSALDLQHWEKEDGTSVI PFFTSLEALQQAVEDEQAFVVMPVRTLFEMTLGETL
FLNAKLPTGKEFMPRE I SLL I GEEGNPLSSQE I LEGGESLI LSEVAEPPAQM I DSLTT
                                                                                                                                                                                                                                                                                                                                                             /locus_tag="S2741" complement(9261. .10037)
                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (9261. .10037)
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LRADYADSLTENGTHGSDSVESAAREIAYFFGEGEVCPRTR"
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/protein_id="AAP17891.1"
/db_xref="GI:30042166"
  LFKTIKPVKRAFICSIKENEEAQPNLLIGIEADGDIEEIIQATGSVATDTLPGDEPIE
                                                                 /product="enhancer of serine sensitivity"
/protein_id="AAP17893.1"
/protein_id="AAP17893.1"
/db_xref="Gi:30042168"
/translation="MSETKNELEDLLEKAATEPAHRPAFFRTLLESTVWVPGTAAQGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KALKRALFLSAFAALRDPLSRAYYTRKMSQGKRHNQALIALARRRCDVLFAMMRDGTF
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/transl_table=11
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/function="enzyme; Purine ribonucleotide biosynthesis"
/function="enzyme; to 143 of 143 are 100.00 pct identical
roctesidues 1 to 143 of 143 from Escherichia coli K-12 :
                                                                                                                                                               /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                      Tocus tag="82741"

(Yunction="phenotype; Not classified"

Fonce="residues 1 to 258 of 258 are 94.96 pct identical to residues 4 to 261 of 261 from Escherichia coli K-12:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                /pseudo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7960. .8442
/gene="sseA"
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note="truncated"
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CTGGAAAAAGATCTGCAAGAAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCT
                                                                GTGGTTGACTGTGCGCGCGATAAAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCG
                                                                                                                             GGCGTCGATTGTCTGCGTATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATG
                                                                                                                                                                 GTGCCGCTGGTGGCTGACATCCACTTCGACTATCGCATTGCGCTGAAAGTAGCGGAATAC
                                                                                                                                                                                     GTGCCGCTGGTGGCTGACATCCACTTCGACTATCGCATTGCGCTGAAAGTAGCGGAATAC
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                                               GTGGTTGACTGTGCGCGCGATAAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="putative membrane protein"
/protein_id="AAN44062.1"
/protein_id="AAN44062.1"
/dbc_graft="Gal24052936"
/translation="MNTEATHDQNEALTTGARLRNAREQLGLSQQAVAERLCLKVSTV
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GKRKKRDGWLMTFTWLVLFVVIGLSGAWWWQDDHKAQQEEITTWADQSABLLSSNSEQ
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DTAATFVPTAATTPDGAAPLPTDQAGVTTPAADENALVMNFTADCWLEVTDATGKKLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /tranelation="MENQAPIQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEAT VNQIKALERVGADIVRVSVPTMDAAEAFKLIKQRVNVPLVADIHFDYRIALKVAEYGV DCLRINFGMIGNEERIMVVDCARDKNIPIRIGVNRGSLEKDLGEKYGEPTPQALLES AMRHVDHLDRLNFDQFKVSVKASDVFLAVESYRLLAKQIDFDHLIGITEAGGARSGAV KSAIGLGLLLSEGIGDTLRVSLAADPVEEIKVGFDILKSLRIRERGINFIACFTCSRQ EFDVIGTVNALEQRIEDIITPMDVSIIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGV RKDRLNNMLDQLEARIRAKAQLDEARRIDVQQVGKIIT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Residues 1 to 337 of 337 are 99 pct identical tresidues 1 to 337 of a 337 aa protein from Escherichia coli 0157:H7 ref: NP_311405.1"
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/protein_id="AAN44061.1"
/db_xref="GI:24052935"
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/transl_table=11
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/locus_tag="
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/locus_tag="SF2562"
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99.0%;
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 2 (bases 1 to 290380)
Wei,J., Goldberg,M.B., Burland,V., Venkatesan,M.M., Deng,W.,
Fournier,G., Mayhew,G.F., Plunkett,G. III, Rose,D.J., Darling,A.,
Mau,B., Perna,N.T., Payne,S.M., Runyen-Janecky,L.J., Zhou,S.,
Schwartz,D.C. and Blattner,F.R.
                                                                                                                                                                                                                                                                                    genome.
AE016987 AE014073
AE016987.1 GI:30042162
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Shigella flexneri
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AACAACGATATGATCGACCAGCTGGAAGCACGCATTCGTGCGAAAGCCCAGTCAGCTGGAC
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  AACAACGATATGATCGACCAGCTGGAAGCACGCATTCGTGCGAAAGCCAGTCAGCTGGAC
                                                                                                             ACCGGCGGCAACAAGAAAAGCGGCCTCTATGAAGATGGCGTGCGCAAAGACCGTCTGGAC
                                                                                                                                                                                                                                                                                    TCGATTATCGGCTGCGTGAATGGCCCAGGTGAGGCGCTGGTTTCTACACTCGGCGTC
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Shigella flexneri 2a str. 2457T
SM Shigella flexneri 2a str. 2457T
SM Shigella flexneri 2a str. 2457T
Shigella flexneri 2a str. 2457T
Bacteria; Proteobacteria; Gammaproteobacteria; Enterobact
Enterobacteriaceae; Shigella.
E 1 (bases 1 to 290380)
Wei, J., Goldberg, M.B., Burland, V., Venkatesan, M.M., Deng
Fournier, G., Mayhew, G.F., Plunkett, G. III, Rose, D.J., Da.
Mau, B., Perna, N.T., Payne, S.M., Runyen-Janecky, L.J., Zhol
Schwartz, D.C. and Blattner, F.R.
Complete Genome Sequence and Comparative Genomics of Shi.
flexneri Serotype 2a Strain 2457T
LInfect. Immun. 71 (5), 2775-2786 (2003) linear of 16 c Enterobacteriales; of. Deng, W., ., Darling, A., BCT 22-APR-2003 the complete Zhou,S.,

TITLE

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JOURNAL
PUBMED
REFERENCE
AUTHORS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lu, W.C., Qiang, B.(
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Jin,O., Shen,Y., Wang,J.H., Liu,H., Yang,J., Yang,F., Zhang,X.B., Zhang,J.Y., Yang,G.W., Wu,H.T., Dong,J., Sun,L.L., Xue,Y., Zhao,A.L., Gao,Y.S., Zhu,J.P., Chen,S.X., Yao,Z.J., Wang,Y., Lu,W.C., Qiang,B.Q., Wen,Y.M. and Hou,Y.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genome sequence of Shigella flexneri 2a: insights into pathogenicity through comparison with genomes of Escherichia K12 and 0.157

Nucleic Acids Res. 30 (20), 4432-4441 (2002)
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LQQQHPQLRLARQQTMLERLQKRMSFALENQLKRAGQQQQCLTQQLNQQNPQPK.HRT
QTRIQQLEYRLAEILRAQLSATRERFGNAVTHLEAVSPLSTLARGYSVTTATDGNVLK
KVKQVKTGEMLTTRLEDGWIESEVKNIQPVKKSRKKVH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TFRPQHGQQVLVRANITLYEPRGDYQIIVESMQPAGEGLLQQKYEQLKAKLQAECLFD
QQYKKPLPSPAHCVGVITSKTGAALHDILHVLKRRDPSLPVIIYPTSVQGDDAPGQIV
RAIELANQRNECDVLIVGRGGGSLEDLWSFNDERVARAIFASRIPVVSAVGHETDVTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /locus_tag="SF2555"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (1437.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (1437. .1688)
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                                                                                                                                                                                                                                                                                                                            complement
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'gene="xseA"
                                                                             transl_table=11
                                                                                                                                                                                                                                                                                               gene="yfgK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       locus_tag="SF2556"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              db_xref="taxon:198214"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       type="genomic DNA"
lin="301"
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TTAWSTSVGSGIGNFYSNLHPALADNVVYAADRAGLVKALNADDGKEIWSVSLAEKDG
WFSKEPALLSGGVTVSGGHVYIGSEKAQVYALNTSGTVVAOGEKVAGEALSRPVVSDG
UVLIHSNGQUQALNEADGAVKWTVNLDMPSLSLSDGTVVAOGEKVAGEAVVGGDNGRVSA
VLMEQGQMIWQQRISQATGSTEIDRLSDVDTTPVVVNGVVFALAYNGNLTALDLRSGQ
IMMKRELGSVNDFIVDGNRIYLVDQNDRVMALTIDGGVTLWAQSDLLHRLLTSPVLYN
GNLVVGDSEGYLHWINVEDGRFVAQQKVDSSGFQTEPVAADGKLLIQAKDGTVYSITR
                                                                                                                                                                                                                                                                                                                                               residues 1 to 392 of 392 are 99 residues 1 to 392 of a 392 aa protein coli Kl2 ref: NP_417007.1"
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GRGVUSLLEHVLLPMMEDLAPQEEVDEDAEYWAQFEAEENGEEEEDDPDPQDSLFIKL
AIVGRRNVGKSTLTNRLLGEERVVVYDMPGTTADSIYIPMERDGREYVLIDTAGYRKR
GKITDAVEKFSVIKTLQAIEDANVVMLVIDAREGISDQDLSLLGFILNSGRSLVIVVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KWDGLSQEVKEQVKETLDFRLGFIDFARVHFISALHGSGVGNLFESVREAYDSSTRRV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LMNYFRKSLDVMGSPIRIQFKEGENPYANKRNTLTPTQMRKRKRLMKHIMKNK"
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                                                                                                                                                                                                                                                                                                                  table=11
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IVEQTPLFKRAIGEVTDVVEKEMYTFEDRNGDSLTLRPEGTAGCVRAGIEHGLLYNQE GRLWTIGPMERHERPOKGRYROFHOLGCEVFGLOGPDIDAELLHTARWWRALGIFEH VTLELNSIGSLEARANYRDALVAFLEGHKEKLDEDGKRWYTNPLRVLDSKNPEVGAL LNDAPALGDYLDESKRHFAGLCKLLESAGIAYTVNQRLVRGLDYYNRTVFEWTINSL LNDAPALGDYLDESKRHFAGLCKLLESAGIAYTVNQRLVRGLDYYNPEFKADPVVDIYLV ASGADTVGAGRXYDGLVEQLGGRATPAVGFAMGLERLVLLVQAVNPEFKADPVVDIYLV ASGADTYGSAAMALAERLRDELLGVKLMTNHGGGNFKKQFARADKWGARVAVVLGESEV /protein\_id="AAN44059.1"
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Best Local Similarity
Matches 1119; Conserv
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                                                                                                                                                                                181
                          301
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GGCGTCGATTGTCTGCGTATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATG
                                                                                                                                                                                                                                                                                                                                                                         ATGCATAACCAGGCTCCAATTCAACGTAGAAAATCAACACGTATTTACGTTGGGAATGTG
                                                                                    GTGCCGCTGGTGGCTGACATCCACTTCGACTATCGCATTGCGCTGAAAGTAGCGGAATAC
                                                                                                                                          GTATCCGTACCGACGATGGACGCGCAGAAGCGTTCAAACTCATCAAACAGCAGGTTAAC
                                                                                                                                                                  GTATCCGTACCGACGATGGACGCGCGGCAGAAGCGTTCAAACTCATCAAACAGCAGCTTAAC
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                                                                                                                                                                                                                                          GTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGT
                                                                                                                                                                                                                                                                                                 CCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACAGAC
                                                                                                                                                                                                                                                                                                                                     CCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACAGAC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
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/function="putative enzyme; Not classified "
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/note="f770; This 770 aa oprox. 720 aa protein PBPF_BACSU
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complement(4413. .6725)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    translation="MKKLRVAACMLMLALAGCDNNDNAPTAVKKDAPSEVTKAASSEN/
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1 (bases 1 to 10225)
Jin,Q., Yuan,Z.H., Xu,J.G., Wang,Y., Shen,Y., Lu,W.C., Wang,J.H.,
Liu,H., Yang,J., Yang,F., Qu,D., Zhang,X.B., Zhang,J.Y., Yang,G.W.,
Wu,H.T., Dong,J., Sun,L.L., Xue,Y., Zhao,A.L., Gao,Y.S., Zhu,J.P.,
Kan,B., Chen,S.X., Yao,Z.J., He,B.K., Chen,R.S., Ma,D.L.,
Qiang,B.Q., Wen,Y.M., Hou,Y.D. and Yu,J.
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Shigella flexneri 2a str. 301
Bacteria, Proteobacteria, Gammaproteobacteria,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              have been correlated with genetic loci are being annotated with CG Site Nos., unique ID nos. for the genes in the E. coli Genetic Stock Center (CGSC) database at Yale University, kindly supplied by Mary Berlyn. A public version of the database is accessible (http://cgsc.biology.yale.edu). Annotation of the genome is an ongoing task whose goal is to make the genome sequence more useful by correlating it with other data. Comments to the authors are appreciated. Updated information will be available at the E. coli Genome Project's World Wide Web site (http://www.genetics.wisc.edu). *** The E. coli K12 sequence and sequence changes. Annotation updates: updated gene identifications and products; all new functional assignments courtesy of Monica sequences described in reference 1. The unique numeric identifiers beginning with a lowercase 'b' assigned to each gene (protein or INNA-encoding) are now designated as gene synonyms instead of labels. This should allow them to be searched for in Entrez as gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (13-OCT-1998) Laboratory of Genetics, University of Submitted (13-OCT-1998) Laboratory of Genetics, USA Wisconsin, 445 Henry Mall, Madison, WI 53706, USA This sequence was determined by the E. coli Genome Project at the University of Wisconsin-Madison (Frederick R. Blattner, director). Supported by NIH grants HG00301 and HG01428 (from the Human Genome Project and NCHGR). The entire sequence was independently determined from E. coli K12 strain MG1655. Predicted open reading determined from E. coli K12 strain MG1655.
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Blattner, F.R., Plunkett, G. III, Bloch, C.A., Perna, N.T., Burlan
Riley, M., Collado-Vides, J., Glasner, J.D., Rode, C.K., Mayhew, G.
Gregor, J., Davis, N.W., Kirkpatrick, H.A., Goeden, M.A., Rose, D.J
Mau, B. and Shao, Y.
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Submitted (02-SEP-1997) Guy Plunkett III, Laboratory of Genetics, University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA.
Email: ecoli@genetics.wisc.edu Phone: 608-262-2534 Fax:
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Submitted (16-JAN-1997) Guy Plunkett III, Laboratory of Genetics,
University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA.
Email: ecoli@genetics.wisc.edu Phone: 608-262-2534 Fax:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4 (bases 1 to 13176)
Plunkett,G. III.
Direct Submission
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/gene="yfgB"
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/note="factor Sigma70;
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MSYGFTTIVRKTRGDDIDAACGQLAGDVIDRTKRTLRKRMQGEAIDIKAV"
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/protein_id="AAC75569.1"
/db_xref="GI:1788864"
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/protein_id="AAC75568.1"
/db_xref="GI:1788863"
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/protein_id="AAC75570.1"
/db_xref="GI:1788865"
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                                                                                                                        function="enzyme; Purine ribor
note="f143; 100 pct identical
                                                                                                                                                                                       EC number="2.7.4.6"
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2 (Dases 1 to 1697)
Baker, J., Franklin, D.B. and Parker, J. Sequence and characterization of the Sequence and characterization of the FEMS Microbiol. Lett. 94, 175-180 (1958ee also J01629 & M11843)
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GTATCCGTACCGACGACGACGCGCCAGAAGCGTTCAAACTCAAACAGCAGGTTAAC
                                                         GTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGT
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/transI_table=11
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/protein_id="CAA45783.1"
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AMRHYDHLDRLNFDQFKYSVKASDVFLAVESYRLLAKQIDQELHLGITEAGGARSGAV
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EFDVIGTVNALEQRLEDIITPMDVSIIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGV
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/cell_line="JF298"
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/strain="K12"
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Location/Qualifiers
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   GTCGAAGCAACGGTCAATCAAATCAAGGCGCTGGAACGCGTTGGCGCTGATATCGTCCGT
                                  CCGATTGGCGATGGTGCTCCCATCGCCGTACAGTCCATGACCAATACGCGTACGACAGAC
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'VNQIKALERVGADIVRYGVPTWDAAEAFKLIKQQVVPLVADIHFDYRIALKVABYGV
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KSAIGLGLLLSBGIGDTLRVSLAADPVEBIKYGFDILKSLRIBRGINFIACFTCSRQ
EFDVIGTVNALEQRLEDIITPMDVSIIACDFVEBIKYGFDILKSTLGVTGGNKKSGLYEDGV
RKDRLDNNDMIDQLEARIRAKASQLDEARRIDVQQVEK"

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/transl_table=11
/protein_id="CAD29065.1"
/db_xref="GI:19701906"
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KASIGIGLILLSKGIGDTLRVSLAADPVEERIKYGFDIKKSLRIRGINFIACPTCSRQ
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Pred. No. 8.6e-266;
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Pred. No. 8.6e-266;
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Novel method for identifying antibacterial
Patent: WO 0061793-A 29 19-OCT-2000;
GPC BIOTECH AG (DE); LOFERER HANNES (DE)

Location/Qualifiers
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Bacteria; Proteobacteria; Gammaproteobacteria;
Enterobacteriaceae; Escherichia.
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Contact: Schulman AH
Institute of Biotechnology
University of Helsinki
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AGAATGTGGAATATGCCTGTTCATAAGTGGATCGTTCGACATATATTTTCCATGC
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aValPheHisGluLeuCysIleAlaValProCysArgLeuPheLysLeuTrpAlaPheLe
                                                                          oCysLeuArgSerLysIleProLysThrLeuAlaIleIleIleAlaPheLeuValSerAl
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170 c 153 g 214 t 31 others
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Oryza sativa (indica cultivar-group)
Oryza sativa (indica cultivar-group)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tel: 520 626 3967
Fax: 520 621 9288
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Jantasuriyarat, C., Lu, G., Gowda, M., Hatfield, J., Zhou, B., Mazur, E., Kudrna, D., Dean, R., Soderlund, C., Wing, R. and Wang, G.
Large-scale identification of ESTs involved in the interaction
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/tissue_type="Leaf"
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XhoI; Lesion Mimic SPL 11"
164 c 169 g 207 t
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1111 Yata, Mishima, Shizuoka 4
Tel: 81-559-81-6856
Fax: 81-559-81-6855
Email: tshinl@genes.nig.ac.jp.
                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Viridiplantae; Streptophyta; En
Spermatophyta; Magnoliophyta; Liliopsida;
Triticeae; Triticum
                                                                                                                                                                                                                                                                                   Contact: Tadasu Shin-i
Center For Genetic Reso
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Ogihara, Y. and Murai, K.
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Location/Qualifiers
                                                                                                   /clone_lib="Y. 00
113 c 125
                                                                                                                                                /mol_type="mRNA"
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/db_xref="taxon:4565"
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                                                                                                                        /tissue_type="spikelet at early flowering"
/dev_stage="Feekes' scale 6"
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                             Unpublished
Other_ES7s: AI441040
Contact: Vodkin, L.O., P
Soybean (NSF 9872565)
Lewin, H. A., Director, J
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271 LysAlaAsnProGluValSerTyrTyrValSerLeuLysSerLeuAlaTyrPheMetVal
                                                                                                                                            Vodkin,L., Keim,P., Shoemaker,R., Retzel,E., Khanna,A., Erpelding,J., Raph,C., Shoop,E., Pardinas,J., Liu,L. an A Functional Genomics Program for Soybean (NSF 9872565)
                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids I; Fabales; Fabaceae; Papilionoldeae; Phaseoleae;
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Ogihara, Y. and Murai, K.
Expressed genes in Triticum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae; Triticeae; Triticum.
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CTGTCCCCTGCCGAATTCTGAAGTTCTGGGCATTCCTAGGGATCATGCTGCAGATCCCCC
            laValProCysArgLeuPheLysLeuTrpAlaPheLeuGlyIleMetPheGlnValProL 472
                                                                     ysThrLeuAlaIleIleIleAlaPheLeuValSerAlaValPheHisGluLeuCysIleA 452
                                                                                                                                                                  TCTACAAAGACTGGTGGAATGCAAAAACAATTGATGAGTATTGGCGAAAATGGAACATGC
                                                                                                                                                                                 heTyrLysAspTrpTrpAsnAlaLysSerValGlyAspTyrTrpArgMetTrpAsnMetP
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/cultivar="Chinese Spring"
/db_xref="taxon:4565"
/clone="whyf23117"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /tissue_type="spikelet at early flowering"
/dev_stage="Feekes' scale 6"
/clone_lib="Y. Ogihara upublished cDNA library, Wh_yf"
/146 c 153 g 193 t
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ESTS-1200 esculentum (tomato
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Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
asterids; lamiids; Solanales; Solanaceae; Solanum; Lycopersicon,
1 (bases 1 to 539)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished
Contact: CUGI
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 TACTTCATGGTTGCTCCAACTTTATGCTATCAGCTTAGCTATCCTCGCTCTGCATCCATT
                TyrPheMetValAlaProThrLeuCysTyrGlnProSerTyrProArgSerAlaCysIle
                                                              AATGAGGGTGAGAATTCCGAAATCAACTACTCTTACAATGTTAGTTTCGAGAGTTTGGCT
                                                                                 AsnAlaAlaAspLysAlaAsnProGluValSerTyrTyrValSerLeuLysSerLeuAla
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                                                                                                                                                                                                                                                                                                          137
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Location/Qualifiers
                                                                                                                                                                                                                                                                                             /clone_libe "tomato callus, TAMU"
/clone_libe "tomato callus, TAMU"
/note="Vector: pBlueScript SK(-); Site_1: EcoR1; Site_2:
/hol; supplier: Giovannoni laboratory; cLEC - Cotyledons
of seedlings 7-10 days post-germination were excised, cut
at both ends and placed on MS medium with no selection.
Mixed callus was harvested at 25 and 40 days and included
undifferentiated masses. Tomato Callus EST Library"
a 102 c 120 g 180 t
                                                                                                                                                                                                                                                                                                                                                                                                                                 /tissue_type="callus"
/dev_stage="25-40 days old"
/lab_host="xL1-Blue MRF'"
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/cultivar-"TA496"
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/clone="cleC69M10"
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QGG20J23
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Email: akożik@atgc.org [michelmore@vegmail.ucdavis.belongs to contig QG_CA_Contig2177, see http://cgpcfor details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Asmundson Hall, UCD, Tel: 1-(530)-742-174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Department of Vegetable Crops, R.W.Michelmore University of California at Davis (UCD) Asmundson Hall, UCD, Davis, CA 95616, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lin, H., van Damme, M., Lavelle, D., Chevaller, P., P., Kolkman, J., Slabaugh, M.S., Livingston, K., Church, S., Jackson, L. and Bradford, K.
Lettuce and Sunflower ESTs from the Compositae
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1 (bases 1 to 741)
Kozik, A., Michelmore, R.W., Knapp, S., Matvienko, M., Kozik, A., Michelmore, R.W., Knapp, S., Chevalier, P., 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; asterids; campanulids; Asterales; Asteraceae; Cichorioideae;
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BQ998922
BQ998922.1 GI:22433318
EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Alexander Kozik [R.W.Michelmore]
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Lactuca sativa
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/clone_lib="QG_EFGHJ lettuce serriola"
/note-"Vector: pBRcDNASflAB; The library was constructed
from 10 different sources of RNA from a single genotype.
Separate cDNAs were generated using primers that
incorporated unique 5' and 3' tags to distinguish each
source of RNA. cDNAs were then pooled, size-fractionated,
directionally cloned into a custom medium-copy vector and
transformations made with four size classes to minimize
size blas. Details of each source of RNA and library
construction can be obtained at http://cgpdb.ucdavis.edu/
TAG_LIB-QG_EFGHJ lettuce serriola
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ACCESSION VERSION KEYWORDS

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xhoI; 24 hrs after innoculation with Rice Blast (C9240-1)"
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Insert Length: 586 Std Error: 0.0
Plate: 086 row: D column: 09
Seg primer: TCACACAGGAAACAGCTATGAC.
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Tel: 580 221 7391
Fax: 580 221 7380
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The Samuel Roberts Noble Foundation
The Samuel Roberts Noble Foundation
OK
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CysMetPheTyrCysPhePheHisLeuTrpLeuAsnIleLeuAlaGluLeuLeuCysPhe
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/dev_stage="Developmentally pooled. Contains a mixture of /dev_stage="Developing, fully-opened flowers and flowers in early transition into pods."
/clone_lib="Developing flower"
/clone_lib="Developing flowers amounts of total reniched, pooled samples of equivalent amounts of total reniched, pooled samples of equivalent amounts of total RNA from very young, developing, fully-opened flowers and flowers transitioning into pods. The cDNA was directionally ligated into the Uni-Zap XR vector (Stratagene) and packaged using the Gigapack III Gold packaging extracts. Phagemids containing cDNA inserts were in vivo excised from the recombinant Uni-Zap XR vector using ExAssist helper phage and the E. coli strain xII-Blue MRF' (Stratagene). Excised plasmids were plated using SOLR cells."
34 a 115 c 132 g 202 t 3 others
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/db_xref="taxon:3880"
/clone="NF086D09FL"
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University of Arizona
Biological Sciences West, 448A, P.O. Box 210088, Tucson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished Contact: Rod Wing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Jantasuriyarat, C., Lu, G., Gowda, M., Hatfield, J., Zhou, B., Mazu Kudrna, D., Dean, R., Soderlund, C., Wing, R. and Wang, G. Large-scale identification of ESTs involved in the interaction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ehrhartoideae; Oryzeae; Oryza
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/clone_lib="OSJNEb"
/note="Vector: pBluescript II KS +; Site_1: EcoRI; Site_2:
/note="Vector: pBluescript II KS +; Site_1: EcoRI; Site_2:
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/dev_stage="3 week"
/lab_host="DH10B"
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/db_xref="taxon:39947"
/clone="OSJNEb16H13"
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mol_type="mRNA"
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                                                                                                                                                            FORWARD: gta aaa cga cgg cca gtg
BACKWARD: gga aac agc tat gac cat
Plate: 02 row: J column: 19
Seq primer: gta aaa cga cgg cca i
Location/Qualifiers
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University of Arizona
Biological Sciences W
85721-0088, USA
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OSJNEd02J19.f OSJNEd Oryza sativa (japonica cultivar-group)
Cione OSJNEd02J19 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 851)
Jantasurlyarat, C., Lu,G., Gowda,M., Hatfield
Kudrna,D., Dean,R., Soderlund,C., Wing,R. ar
Large-scale identification of ESTs involved
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                                                                                                                                                                                                                                                                  Email: http://genome.arizona.edu
                                                                                                                                                                                                                                                                                      Tel: 520 626 3967
Fax: 520 621 9288
                                                                                                                                                                                                                                                                                                                                                                                                                       between rice and Magnaporthe grisea
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                                                              /organism="Oryza sativa (
/mol_type="mRNA"
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/clone="OSJNEd02J19"
                                                                                                                                                                                                                                                                                                                                                                                         Rod Wing
/clone_lib-"OSJNEd"
            /tissue_type="Leaf"
/dev_stage="3 week"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                         Institute
                                                                                                                                                                                                                                                                                                                                      West, 448A, P.O. Box 210088, Tucson,
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in the Wang,

interaction

ΑZ

EST 09-APR-2003

785

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JOURNAL COMMENT
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1 (bases 1 to 872)
Jantasuriyarat, C., Lu,G., Gowda,M., Hatfield,J., 21
Kudrna,D., Dean,R., Soderlund,C., Wing,R. and Wang,
Large-scale identification of ESTs involved in the
between rice and Magnaporthe grisea
Unpublished
Control
                                                                                                                                                                                                                                                                                                                                            OSJNEG02118 f OSJNEG Oryza sativa (j clone OSJNEG02118 5', mRNA sequence. CB660599 CB660599.1 GI:29664324
                                                                                                                                                                                                                                                                                                 EST.

Oryza sativa (japonica cultivar-group)

Oryza sativa (japonica cultivar-group)

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae;
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                                                                                                                     primer: gta aaa cga
                          /organism="Oryza sativa (
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/cultivar="Nipponbare"
/db_xref="taxon:39947"
/clone="OSUNEd02118"
/tissue_type="Leaf"
/dev_stage="3 week"
/lab_host="DH108"
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/clone_lib="OSJNEd"
/note="Vector: pBluescript II
XhoI; 24 hrs after innoculation
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293 ThrLeuCysTyrGlnProSerTyrProArgSerAlaCysIleArgLysGlyTrpValAla
Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Eukaryota; Viridiplantae; Streptophyta; En
Spermatophyta; Magnoliophyta; Liliopsida;
                                                                         clone OSJNEb16H13 5', m
CB651490
CB651490.1 GI:29646483
                                                                                                    CB651490 813 bp mRNA linear EST 08-
OSJNEb16H13.f OSJNEb Oryza sativa (japonica cultivar-group)
Clone OSJNEb16H13 5', mRNA sequence.
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|TTTTGGTTCTTTTTCTGCATCTATGGGCAGCCAATGTGCCTTCTCCTGTACTATCATGAT.
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Alcala,J., Vrebalov,J., White,R., Matern,A.L., Vision,T.,
Llang,F., Upton,J., Craven,M.B., Bowman,C.L., Ahn,S., Rc,C.M., Fraser,C.M., Martin,G.B., Tanksley,S.D. and Glovann Generation of ESTs from tomato callus tissue
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Spermatophyta; Magnoliophyta;
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                   LeuCysMetPheTyrCysPhePheHisLeuTrpLeuAsnIleLeuAlaGluLeuLeuCys
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                                                                                                    AspLeuLeuTyrAlaIleGluArgValLeuLysLeuSerValProAsnLeuTyrValTrp
CTCTGCATGTTCTACAGCCTCTTTCATCTTTGGTTAAATATACTTGCGGAAGTTCTGCGA
                                                                            MACCITTTATACGCCATCGAGAGGGTATTGAAGCTTTCAGTTCCAATTTTATATGTCTGG
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/note="Vector: pBlueScript SK(-); Site_1: EcoR1; Site_2:
Xhol; supplier: Glovannoni laboratory; cLEC - Cotyledons
of seedlings 7-10 days post-germination were excised, cut
at both ends and placed on MS medium with no selection.
Mixed callus was harvested at 25 and 40 days and included
undifferentiated masses. Tomato Callus EST Library"
a 142 c 160 g 250 t
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/dev_stage="25-40 days ol
/lab_host="XL1-Blue MRF'"
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.clemson.edu/orders/index.html
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Buell, C.R., Hart, A., Baker, B., Tanksley, S., Fry, W., Smart, C.,
Restrepo, S., Griffiths, H., van der Hoeven, R., Tsai, J. and
Karamycheva, S.A.
Generation of a set of potato cDNA clones for microarray analyses
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Contact: Robin Buell
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                                                                                                           AlaIleGluArgValLeuLysLeuSerValProAsnLeuTyrValTrpLeuCysMetPhe
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                  TACAGCCTCTTTCATCTTTGGCTAAATATACTTGCGGAAATTCTGCGATTTGGGGATCGT
                                     TyrCysPhePheHisLeuTrpLeuAsnIleLeuAlaGluLeuLeuCysPheGlyAspArg
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                                                                                          GCCATCGAGAGGGTATTGAAGCTTTCAGTTCCAATTTTATATGTCTGGCTCTGCATGTTC
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/db_xref="taxon:4113"
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Submitted (25-APR-2002) Maize Mapping Finjent, Sibmitted (25-APR-2002) Maize Mapping Finjent, Sibmitted (25-APR-2002) Maize Spanding physical clones, Missouri, Columbia, MO 65211, USA

If you are interested in getting corresponding physical clones, these are publicly available from ZmDB and may be found by BLAST searching at MSL, maizemap.org; ZmDB, www.zmdb.iastate.edu; TiGR, www.tigr.org; or NCBI, www.ncbi.nlm.nih.gov. When the source of the maize cDNA sequences is either Virginia Walbot, Stanford or Pat maize cDNA sequences is either virginia Walbot, Stanford or Pat maize cDNA sequences is either clones may be requested from ZmDB:
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Eukaryota; Viridiplantae; Streptophyta; En
Spermatophyta; Magnoliophyta; Liliopsida;
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Hainey,C.F., Dolan,M., Miao,G.H.,
Arthur,L.W., Hanafey,M., Morgante
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/note="this sequence is part of a project of EST assemblies resulting from the application of public contigs to seed Dupont contigs; this resource was assembled by Dupont as part of a collaboration for to overgo addressing of BACs in conjunction with the Ma Mapping Project"

17 others
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/mol_type="mRNA"
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/clone_lib="Maize Mapping Project/DuPont Cornsensus
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Morgante,M. and Tingey,S.V.
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If you are interested in getting corresponding physical clones, these are publicly available from ZmDB and may be found by BLASS searching at MSL, maizemap.org; ZmDB, www.zmdb.iastate.edu; TIGH www.ncbi.nlm.nih.gov. When the source of maize cDNA sequences is either Virginia Walbot, Stanford or Pat Schnable, lows State, then clones may be requested from ZmDB: www.zmdb.iastate.edu.
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                                         TyrValSerLeuLysSerLeuAlaTyrPheMetValAlaProThrLeuCysTyrGlnPro
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                                                                                                        AlaAsnAlaAlaAspLysAlaAsnProGluValSer--
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                                                                                                                                                          lGlyAsnMetIlePheTrpPheIlePheCysIlePheGlyGlnProMetCysValLeuLe
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Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; asterids; lamilds; Solanales; Solanaceae; Solanum.

Solanum tuberosum (potato)

BQ510367.2

GI:21926064

CDNA

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-Q-G912_1/USPTO_SPOOL/US09623514/runat_29082003_152200_62/app_query.fasta_1.711
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-DOCALIGN-200 -THR_SCORE-pct -THR_MAX-100 -THR_MIN-0 -ALICN-15 -MODE-LOCAL
-OUTFMT=pto -NORM-ext -HEAPSIZE-500 -MINLEN-0 -MAXLEN-200000000
-USER-US09623514_@CGN.1_1_4237 @runat_2908200_152200_62 -NCPU-6 -ICPU-3
-NO_MMAP -LARGEQUERY -NEG_SCORES-0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT-120 -WARN_TIMEOUT-30 -THREADS-1 -XCAPOP-10 -XCAPEXT-0.5 -FGAPOP-6
-FGAPEXT-7 -YGAPOP-10 -YGAPEXT-0.5 -DELOP-6 -DELEXT-7
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Listing first 45 summaries
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-MODEL-frame+_p2n.model -DEV-xlp
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

RESULT 1 AY105372 LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANIS	. 0 0	ი 	0 00 wwwwwwww	00 0	0 0 +-+++++	0 0	Resul No
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linear	CB6 CB6 BU0 AL52 BQ6	BJ2 BM9 BQ8 AV92 CB0	BQ9 AJ47 AJ47 CB6 BH4 CB6 CB6	BG3 AV92 BZ5 AA04 CB6 CB6	B14 BJ3 AW34 CB6 AJ47 BQ1 CB6	805 805 805 805 805 805	Desc
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16-0CT-2002	SACYZGII. OSIIEAOSL QGJ10F20. L520752 AGENCOURT	BJ268713 AGENCOURT DGC21P16. V925760 V925760 Sav61e06.	QGG19N20. J470191 J470190 A07470190 BOHEK18TR BOHEK18TR CSIIEAO5L CGC17N02. CSJNEGO21	Zm04_0590 V926912 BONFC89TR 4635 CD4 4635 CD4 DSJNED09A DSJNED16H	EST532878 BJ316561 M210004B OSIIEa03G J470192 EST609881 OSIIEa03G	BQ510367 EST617782 BY5110660 Zea mays B1422326 EST532992 CB660599 OSJNEA0021 CB651490 OSJNEA16H CB660636 OSJNEA021 BQ14898 NF086D09F BQ99922 QG620JJ3. BJ322102 BJ322102	

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
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В

498 3014	486 rValGlyAsnMetIlePheTrp	
486 2954	466 eMetPheGlnValProLeuValPheIleThrAsnTyrLeuGlnGluArgPheGlySerTh :	
466 2915	452 aValproCysarg	
452 2858	432 sThrLeuAlaIleIleIleAlaPheLeuValSerAlaValPheHisGluLeuCysIleAl  :::    :::::::	
432 2798	414 SLYSTIPMETVALAIGHISILETYIPheProCySLeuAigSerLySILeProLy	
414 2738		
394 2678	374 eHisLeuTrpLeuAsnIloLeuAlaGluLeuLeuCysPheGlyAspArgGluPheTyrLy	
374 2618	359 rVal	
359 2558	340 rLysHisproLeuLysGlyAspLeuLeuTyrAlaIleGluArgValLeuLysLeuSe	
340 2519	320 ePheThrGlyPheMetGlyPheIleIleGluGlnTyrIleAsnProIleValArgAsnSe :::::	•
320 2459	. 300 rProArgSerAlaCysIleArgLySGlyTrpValAlaArgGlnPheAlaLysLeuValIl 	
300 2399	280 1SerLeuLysSerLeuAlaTyrPheMetValAlaProThrLeuCysTyrGlnProSerTy	
280 2357	268	
267 2297	260 raspileargSerLeualaasn	
260 2237	245 rCys11eValTrpLeuLysLeuValSerTyrAlaHisThrSer	
245 2189	228 rLeuargCysaspSeralaPheLeuSerGlyValThrLeuMetLeuLeuTh	
228 2129	208 1ValllepheLeuHislleIleTleThrMetThrGluValLeuTyrProValTyrValTh ::::	
208 2069	188 eProLeuAlaAlaPheThrValGluLysLeuValLeuGlnLysTyrIleSerGluProVa	

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498 ePheGLyGln 501 :::       3015 TTATTCTCAA 3024	

Search completed: August 31, 2003, 07:17:10 Job time : 132 secs

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US-08-509-187D-2
                                                                                                                                                                                        Sequence 2, Application US/08509187D Patent No. 5834283 GENERAL INFORMATION:
                                                                                                           APPLICANT: Chang, Ta-Yuan and Chang, TITLE OF INVENTION: ACYL Coenzyme A: NUMBER OF SEQUENCES: 9
CORRESPONDENCE ADDRESS:
                                                                          ADDRESSEE:
STREET: 28
CITY: Boston
STATE: Massachusetts
COUNTRY: USA
ZIP: 02109
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                                                                          28 State Street
                                                                                              LAHIVE & COCKFIELD,
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Cholesterol Acyltransferase
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (617)742-4214
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 4079 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Lamport Hammitte, Ann REGISTRATION NUMBER: 34,858 REFERENCE/DOCKET NUMBER: DC TELECOMMUNICATION INFORMATION: TELEPHONE: (617)227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
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TOPOLOGY: lir
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/01 FILING DATE: 31-JUL-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
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                                                                          ACACTTGTAGTAGATTACATTGATGAAGGAAGGCTGGTGCTTGCAAGTTACG--
                                                                                              ArgLeuIleGlu-AsnLeuMetLysTyrGlyTrpLeuIleArgThrAspPheTrpPh
                                                                                                                                                GACCACATCAGAACAATATATCACATGTTTATTGCCCTCCTCATTCTCTTTATCCTCAGC
                                                                                                                                                                                      SerHis---AlaGlyLeuPheAsnLeuCysValValValLeuIleAla---ValAsnSer 148
                                                                                                                                                                                                                                                              ValProAlaHisArgArgAlaArgGluSerProLeuSerSerAspAlaIlePheLysGln
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                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGGATTTGAGAGCACCTCCAGAA-----
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                                 eSerSerArgSerLeuArgAspTrpProLeuPheMetCysCysIleSerLeuSerIlePh 188
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Matches:
Conservative:
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Indels:
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                                                                      FILING DATE:
CLASSIFICATION: 800
ATTORNEY/AGENT INFORMATION:
NAME: LAMPORT HAMMITTE, AI
REGISTRATION NUMBER: 34,8
                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: CHANG, TA-YUAN
APPLICANT: CHANG, CATHERINE C. Y.
ATITLE OF INVENTION: ACYL COENZME A: CHOLESTEROL
TITLE OF INVENTION: ACYLTRANSFERASE (ACAT)
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                          SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                  REGISTRATION NOTICE DC:
REFERENCE/DOCKET NUMBER: DC:
RELECOMMUNICATION INFORMATION:
(617) 227-2700
                                                                                                                                                                                                COMPUTER: Lbm. . PC-
OPERATING SYSTEM: PC-
OPERATE: ASCII Text
OPERATE: ASCII Text
      TELEFAX:
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SYSTEM: PC-DOS/MS-DOS
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      (617) 227-27
17) 227-5941
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34,858
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SEQUENCE CHARACTERISTICS:
LENGTH: 4079 base pairs
TYPE: nucleic acid
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rAspIleArgSerLeuAlaAsn---
                                                      ATATGTTGTG------TTAGCATATCCTGCCACCAGCTTCCCGGTTCATCATTA
                                                                                                                                                                      rLeuArgCysAspSerAlaPheLeu-----SerGlyValThrLeuMetLeuLeuTh
                                                                                                                                                                                                                                               lValIlePheLeuHisIleIleIleThrMetThrGluValLeuTyrProValTyrValTh
                                                                                                                                TCTCTTCCATGGCTTTCTTTTCATGATCTTCCAGATTGGAGTTCTAGGTTTTGGACCAAC
                                                                                            rCysIleValTrpLeuLysLeuValSerTyrAlaHisThrSer---
                                                                                                                                                                                                                                                                                       TCCTACCGTTGTTTGGACCTGGTGGATCATGTTCCTGTCTACATTT---TCAGTTCCCTA
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Alignment Scores:  9.16e-35  Length: 4011  Score: 412.50  Matches: 148  Percent Similarity: 42.468  Conservative: 80  Best Local Similarity: 27.568  Mismatches: 173	; MOLECULE TYPE: CDNA PCT-US93-09704A-3	LENGTH: 4011 base pairs TYPE: nucleic acid STRANDEDNESS: single	; TELEPHONE: (617) 227-2700 ; TELEFAX: (617) 227-5941 ; INFORMATION FOR SEQ ID NO: 3: ; SEQUENCE CHARACTERISTICS:	NAME: LAMPORT HAMMITTE, ANN.  REGISTRATION NUMBER: 34,858  REFERENCE/DOCKET NUMBER: 051-033CP  TELECOMMUNICATION INFORMATION:	er 14, 1992 U.S. SER. NO. mber 10, 1993 ATION:	; FILING DATE: October 12, 1993 ; CLASSIFICATION: ; PRIOR APPLICATION DATA: ; APPLICATION NUMBER: U.S. SER. NO. 959,950	OPERATIKG SYSTEM: PC-DOS/MS-DOS SOFTWARE: ASCII Text CURRENT APPLICATION DATA: APPLICATION NUMBER: PCT/US93/09704A			RESULT 13 PCT-US93-09704A-3 ; Sequence 3, Application PC/TUS9309704A	Qy 494	Qy 475 IleThrAsnTyrLeuGlnGluArgPheGlySerThrValGlyAsnMetIlePheTrp 493	Qy 457LeuPheLysLeuTrpAlaPheLeuGlyIleMetPheGlnValProLeuValPhe 474	Qy 441 LeuValSeralaValPheHisGluLeuCysIleAlaValProCysArg 456	Qy 423PheProCysLeuArgSerLysIleProLysThrLeuAlaIleIleAlaPhe 440	Qy 403 GlyAspTyrTrpArgMetTrpAsnMetProValHisLysTrpMetValArgHisIleTyr 422 :::   :::	Qy 383 GluLeuLeuCysPheGlyAspArgGluPheTyrLysAspTrpTrpAsnAlaLysSerVal 402	2516
309 2357	Qy 289 MetValAlabroThrLeuCysTyrGlnProSerTyrProArgSerAlaCysIleArgLys 308 :::	Qy 273 ASnProGluValSerTyrTyrValSerLeuLySSerLeuAlaTyrPhe 288 :::        :::    :::         Db 2255 AGCACTGTTCCAATACCTACAGTCAACCAGTATTTGTACTTC 2296	. Qy 256 AlahisThrSerTyrAspIleArgSerLeuAlaAsnAlaAlaAspLysAla 272	Qy 236 LeuSerGlyValThrLeuMetLeuThrCysIleValTrpLeuLysLeuValSerTyr 255 :::::::::::::::::::::::::::::::::::	Qy 217 ThrMetThrGluValLeuTyrProValTyrValThrLeuArgCysAspSerAlaPhe 235 :::	Qy 204IleSerGluProValValIle	Qy 188 PheProLeuAlaAlaPheThrValGluLysLeuValLeuGlnLysTyr 203	Qy 168 eSerSerArgSerLeuArg-AspTrpProLeuPheMetCysCysIleSerLeuSer-Ile 187	Qy 149 ArgLeuIleIleGlu-AsnLeuMetLysTyrGlyTrpLeuIleArgThrAspPheTrpPh 168    :::::::               ::: Db 1862 ACACTTGTAGTAGATTACATTGATGAAGGAAGGCTGGTGCTTGAGT 1907	Qy 131 SerHisAlaGlyLeuPheAsnLeuCysValValLeuIleAlaValAsnSer 148	Qy 111 VaiProAlaHisArgArgAlaArgGluSerProLeuSerSerAspAlaTiePneLysGln 130	GlyargGlyGlyGluGlyargGlyAsnalaAspAlaThrPheThrTyrargProSer	/1 AlaGInGLYTNTAIAASNL-UALAGLYASPASNASNGLYGLYGLYGLYASPASNASNGLYGLY	1 ASPASPVALGLYALAUFOALAASPVALAUGASPATGILEASPSETVALVALASAASPASP	37 ASDGIYLeu	1/ GLYGLYGLUP NEVBLASPLEUAS PATGLEUAT GATGLYSSE TATGSE TABSETSET	-09-623-514A-2 (1-520) x PCT-US93-09704A-3 (1-4011)	Query Match: 14.89% Indels: 136 DB: 5 Gaps: 23

363 LeuTyrValTrpLeuCysMetPheTyrCysPhePheHisLeuTrpLeuAsnIleLeuAla 382	Qy	37 AsnGlyLeuLeuLeuSerGlySerAspAsnAsnSerProSer 50	ν
2474CGTGTTCTGGTCCTATGTGTATTTAACTCCATCTTGCCAGGT 2515	Db	1604 GCAGTCACTTTGATGATTTTGTGACCAATCTCATTGAAAAGTCAGCATCATTAGATAAT 1663	망
LeuLeuTyrAlaIleGlu	Qy	17 GlyGlyGluPheValAspLeuAspArgLeuArgArgLysSerArgSerAspSerSer 36	φ
2417 TTTGAAAGGCTTTGTGCCCCCTTGTTTCGGAATATCAAACAGGAGCCCTTCAGCGCT 2473	מט	US-09-623-514A-2 (1-520) x US-09-121-396-3 (1-4011)	US-09
329 IleGluGlnTyrIleAsnProIleValArgAsnSerLysHisProLeuLysGlyAsp 347	Qy	Indels: Gaps:	
2357 GGTTATGTCGCTATGAAGTTTGCACAGGTCTTTGGTTGCTTTTCTATGTGTACTACATC 2416	Db	t Similarity: 42.46% Conservative: 80  ocal Similarity: 27.56% Mismatches: 173	Score: Percent Best Loc
263/ IIRIIIUUTEETRICIREUTRIUTRIURACAGETRIUCEAGARATEUCEACIGIRAGATUS 2330	? 5	Scores:	Alignment
289 MetValalaProThrLeuCysTyrGlnProSerTyrProArgSerAlaCysIleArgLys 308	, 64 5	PE	; US-09
2/3 ASDPROGLUVALSETTYTTYTVALSETLEULYSSETLEUALATYTPHE 288 :::        :::    :::        2255 AGCACTGTTCCAATACCTACAGTCAACCAGTATTTGTACTTC 2296	9d 6	TYPE: nucleic acid STRANDEDNESS: single TOPOLOGY: linear	
Serryraspitentgerlentgashintan.tanspiysata	р <u>г</u>	FOR SEQ ID CHARACTERIST	
2135 ACACTGCCACCAGCTTCCCGGTTCATCATTATATTCGAGCAGATTCGTTTTGTAATGAAG 2194	) B	REFERENCE/DOCKET NUMBER: DCI-033CPDV TELECOMMUNICATION INFORMATION: TELETERENCE: (617, 237-370)	
236 LeuSerGlyValThrLeuMetLeuLeuThrCysIleValTrpLeuLysLeuValSerTyr 255	· · · · · · · · · · ·	NAME: LAMPORT HAMMITTE, ANN. REGISTRATION NUMBER: 34,858	•• ••
217 ThrMetThrGluValLeuTyrProValTyrValThrLeuArgCysAspSerAlaPhe 235 :::	Qy	PRIOR APPLICATION DATA: APPLICATION NUMBER: US/08/509,187 FILING DATE: 07/31/95 ATTORNEY AGENT INFORMATION	
204IleSerGluProValVallle	Qy Db	CURRENT APPLICATION DATA:  APPLICATION NUMBER: US/09/121,396  FILING DATE:  CLASSIFICATION:	
188 PheProLeuAlaalaPheThrValGluLySLeuValLeuGlnLySTyr 203     :::     :::    :::    ::: 1967 ATGTTCCTGTCTACATTTTCAGTTCCCTATTTTCTGTTTCAACATTGGCGCACTGGCTAT 2026	Qy Db	MEDIUM TYPE: Floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: ASCII Text	
168 eSerSerArgSerLeuArg-AspTrpProLeuPheMetCysCysIleSerLeuSer-Ile 187	Qу	В. >	
149 ArgLeuIleIleGlu-AsnLeuMetLysTyrGlyTrpLeuIleArgThrAspPheTrpPh 168	dd Vo	CORRESPONDENCE ADDRESS: ADDRESSE: LAHIVE & COCKFIELD STREET: 28 STATE STREET CITY: BOSTON	
131 SerHisAlaGlyLeuPheAsnLeuCysValValValLeuIleAlaValAsnSer 148	Qy	APPLICANT: CHANG, CATHERINE C. Y. TITLE OF INVENTION: ACYL COENZYME A: CHOLESTEROL TITLE OF INVENTION: ACYLTRANSFERASE (ACAT). NUMBER OF SEQUENCES: 9	
1766GCAAGGCGCTCTCTTAGATGAACTGCTTGAAGTG 1801	Db	NFORMATION: NT: CHANG,	; GE
111 ValProAlaHisArgAlaArgGluSerProLeuSerSerAspAlaIlePheLysGln 130	Qy	Sequence 3, Application US/09121396 Patent No. 5968749	; Seq
1765 1765	рb	RESULT 12 US-09-121-396-3	RESULT
91 GlyArgGlyGlyGlyGluGlyArgGlyAsnAlaAspAlaThrPheThrTyrArgProSer 110	Qy	2912 TCTCTTTCTTGGGCAATGGAGTCTTACTCTGCTTTTATTCTCAA 2956	В
	Db	494PheIlePheCysIlePheGlyGln 501	Qy
<b>pAsnAsnGlyGlyGlyAspAsnAsnGlyGly</b>	Qy	H	망
51 AspAspValGlyAlaProAlaAspValArgAspArgIleAspSerValValAsnAspAsp 70	Ωу	2813 CCCGTGCTGTTCGTGCTCTTCATGTTCTTTGGAATGGCTTTCAACTTC 2860 475 IleThrAsnTyrLeuGlnGluArgPheGlySerThrValGlyAsnMetIlePheTrp 493	Oy Db
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Oy       51 AspAspValGlyAlaProAlaAspValArgAspArgIleAspSerValValAsnAspAsp 70	Qy 17 GlyGlyGluPheValaspLeuAspArgLeuArgArgLysSerArgSerAspSerSer 36	: imilari l Simil ch:	ne 97	RMATIC -7400 214 O: 3: CS: airs	Sath Fig	COMPUTER READABLE FORM:  MEDIUM TYPE: Floppy disk  COMPUTER: IBM PC compatible  OPERATING SYSTEM: PC-DOS/MS-DOS  SOFTWARE: Patentin Release #1.0, Version #1.25  CURRENT APPLICATION NUMBER: US/08/509,187D  FILING DATE: 31-JUL-1995	APPLICANT: Chang, Ta-Yuan and Chang, Catherine C.Y. TITLE OF INVENTION: ACYL Coenzyme A: Cholesterol Acyltransferase NUMBER OF SEQUENCES: 9 CORRESPONDENCE ADDRESS: ADDRESSEE: LAHIVE & COCKFIELD, LLP STREET: 28 State Street CITY: Boston STATE: Massachusetts COUNTRY: USA COUNTRY: USA
D	OV DD QY	0 Q D Q Q	D	00 QV	D Q D Q	D Q D Q	0 D O O O O O O O O O O O O O O O O O O
	348 LeuLeuTyrAlaIleGluArgValLeuLysLeuSerVal	309 GlyTrpValAlaArgGlnPheAlaLysLeuValllePheThrGlyPheMetGlyPheIle 328    :::       :::       2357 GGTTATGTCGCTATGAAGTTTTGCACAGGTCTTTGGTTGCTTTTCTATGTGTACTACATC 2416 2359 IleGluGlnTyrIleAsnProIleValArgAsnSerLysHisProLeuLysGlyAsp 347    ::	273 ASDPrOGLUVALSETTYTTYVALSETLEULYSSETLEUALATYTPHE 288 :::	236 LeuSerGlyValThrLeuMetLeuLeuThrCysIleValTrpLeuLysLeuValSerTyr 255 2135 ACACTGCCACCAGCTTCCCGGTTCATCATTATATTCGAGCAGATTCGTTTTGTAATGAAG 2194 256 AlaHisThrSerTyrAspIleArgSerLeuAlaAsnAlaAspLysAla 272	204PheLeuHisileIleile 216	168 eSerSerArgSerLeuArg-AspTrpProLeuPheMetCysCysIlcSerLeuSer-Ile 187	1766

Qy 168 eSerSerArgSerLeuArg-AspTrpProLeuPheMetCysCysIleSerLeuSer-Ile 187     :::     :::     :::                 1908 -TCAGCCTCCTGTCTTATGCTTTTGGCAAATTTCCTACCGTTGTTTGGACCTGGTGGATC 1966	Qy 131 SerHisAlaGlyLeuPheAsnLeuCysValValValLeuIleAlaValAsnSer 148	Qy 91 GlyArgGlyGlyGlyGlyArgGlyAsnAlaAspAlaThrPheThrTyrArgProSer 110  Db 1765 1765  Qy 111 ValProAlaH1sArgArgAlaArgGluSerProLeuSerSerAspAlaIlePheLysGln 130	1664 GGTGGGTGCGCTCTCACAACCTTTTCTGTTCTTGAAGGAGAAAACAACAATAGAGCG 51 AspAspValGlyAlaProAlaAspValArgAspArgIleAspSerValValAsnAspAsp	US-09-623-514A-2 (1-520) x US-08-121-057-3 (1-4011)  Oy 17 GlyGlyGluPheValAspLeuAspArgLeuArgArgArgArgLysSerArgSerAspSerSer 36	ent Scores:  No.: 9.16e-35 Lenc No.: 412.50 Matc t Similarity: 42.468 Cons ocal Similarity: 27.568 Misn Match: 14.898 Indo Gaps	LENGTH: 4011 base pairs TYPE: nucleic acid FTRANDEDNESS: single TOPOLOGY: linear MOLECULE TYPE: CDNA FEATURE: FEATURE: NAMES/KEY: CDS LOCATION: 13973046 US-08-121-057-3	CURRENT APPLICATION DATA:  APPLICATION NUMBER: US/08/121,057  FILING DATE:  CLASSIFICATION: 800  ATTORNEY/AGENT INFORMATION:  NAME: LAMPORT HAMMITTE, ANN.  REGISTRATION NUMBER: 34,858  REFERENCE/DOCKET NUMBER: DCI-033CP  TELECOMMUNICATION INFORMATION:  TELEPHONE: (617) 227-2700  TELEPAX: (617) 227-5941  INFORMATION FOR SEQ ID NO: 3:  SEQUENCE CHARACTERISTICS:
2912 TCTCTTTTCTTGGGCAATG SULT 11 -08-509-187D-3 Sequence 3, Application US/0850 PAtent NO. 5834283 GENERAL INFORMATION:	Qy 457	Qy 423PheProCysLeuArgSerLysIleProLysThrLeuAlaIleIleIleAlaPhe 440	Qy 383 GluLeuLeuCysPheGlyAspArgCluPheTyrLysAspTrpTrpAsnAlaLysSerVal 402    :::	348 LeuLeuTyrAlaIleGluArgValLeuLysLeuSerVal	309 2357 329	OF TYPES THE CONTRACTOR CONTRACTOR OF THE PROPERTY OF THE PROP	204PheLeuHisIleIleIle 204PheLeuHisIleIleIleIle 207 AGCAAGAGTICTCATCCGCTGATCCGTTCTCCATGGCTTTCTTTCATGATCTTC 207 ThrMetThrGluValLeuTyrProValTyrValThrLeuArgCysAspSerAlaPhe 217 ThrMetThrGluValLeuTyrProValTyrValThrLeuArgCysAspSerAlaPhe 218 CAGATTGGAGTTTTAGGTTTTGGACCAACATATGTTGTGTTA

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RESULT 9
US-09-103-754A-3
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APPLICANT: Farese, Robert
APPLICANT: Cases, Sylvaine
APPLICANT: Smith, Steven
APPLICANT: Erickson, Sandra
TITLE OF INVENTION: Diacylglycerol O-acyltran
TITLE OF INVENTION: sferase
                                ATTORNEY/AGENT INFORMATION:

NAME: Field, Bret E
REGISTRATION NUMBER: 37,620
REFERENCE/DOCKET NUMBER: 6510
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650 327 3400
                                                                                                                                                                                                                       OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: CLASSIFICATION:
                                                                                                                           APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                              CITY: Palo Alto
STATE: CA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
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                                                                                                                                                                                                                                                               Sequence 3, Application US/08121057
Patent No. 5484727
GENERAL INFORMATION:
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COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy d.
COMPUTER: IBM PC compu
OPERATING SYSTEM: PC-I
SOFTWARE: ASCII Text
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 629 base reference.
                                                                                                                                                                       NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                     APPLICANT: CHANG, TA-YUAN
APPLICANT: CHANG, CATHERINE C. Y.
TITLE OF INVENTION: ACYLTRANSFERASE (ACAT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS: single TOPOLOGY: linear
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                                                                             ZIP: 02109
                                                                                          COUNTRY:
                                                                                                           STATE:
                                                                                                                          CITY: BOSTON
                                                                                                                                          STREET:
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60 STATE STREET, SUITE 510
                                                                                             USA
            E: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
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RESULT 8
US-09-326-203A-14
                  Sequence 14, Application US/09326203A
Patent NO. 6444876
GENERAL INFORMATION:
APPLICANT: LASSNEY, Mike
APPLICANT: Ruezinsky, Diane
TITLE OF INVENTION: Acyl-coA:Cholesterol
TITLE OF INVENTION: Acid Sequences
FILE REFERENCE: 17045/00/WO
    CURRENT APPLICATION NUMBER: US/09/326,203A
                                                                                                                                                                                                                                        1401
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT FILING DATE: 1999-06-0
PRIOR APPLICATION NUMBER: 60/0
PRIOR PILING DATE: 1998-06-05
PRIOR APPLICATION NUMBER: 60/1
PRIOR FILING DATE: 1998-11-12
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ORGANISM: Human
FEATURE:
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  345 LysGlyAspLeuLeuTyrAla-----IleGluArgValLeuLysLeuSerValProAsn
                                                           819 CAGGTGGGGCTGATCCAGCAGTGGATGGTCCCCACCATCCAGAACTCCATGAAGCCCCTTC
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                                                                                                                                                                                                                                                                                                                                    272 AlaAsnPro------GluValSerTyr-----TyrValSerLeuLysSer
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         164 ThrAspPheTrpPheSerSerArgSerLeuArgAsp-----TrpProLeuPheMet
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SOFTWARE: PatentIn Ver

SEQ ID NO 16

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; LENGTH: 1766

; TYPE: DNA

ORGANISM: Rattus sp.
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GENERAL INFORMATION:
APPLICANT: Lassner, Mike
APPLICANT: Ruezinsky, Diane
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 PheLeuHisIleIleIleThrMetThrGluValLeuTyrProValTyrValThrLeuArg
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                                  ValGlyAsnMetIlePheTrpPheIlePheCysIlePheGlyGlnProMetCysValLeu 506
                                                                           ATGGCTCAGGTCCCACTGGCCTGGATTGTGGGCCGATTC----TTCCAAGGGAAC
                                                                                                             MetPheGlnValProLeuValPheIleThrAsnTyrLeuGlnGluArgPheGlySerThr
                                                                                                                                                      CATGAGTACCTAGTGAGCGTTCCCCTGCGGATGTTCCGCCTCTGGGCATTCACAGCCATG
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US-09-326-203A-15
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Lassner, Mike
APPLICANT: Ruezinsky, Diane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 15
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/326,203A CURRENT FILING DATE: 199-06-04 PRIOR APPLICATION NUMBER: 60/088,143 PRIOR FILING DATE: 1998-06-05 PRIOR APPLICATION NUMBER: 60/108,389 PRIOR APPLICATION NUMBER: 60/108,389 PRIOR FILING DATE: 1998-11-12 NUMBER OF SEQ ID NOS: 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: Acyl-CoA:Cholesterol Acyltransferase Related Nucleic TITLE OF INVENTION: Acid Sequences FILE REFERENCE: 17045/00/WO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE:
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                                                                                                                               GCTATCCTGAATTGGTGCCTGGTGATGCTGATCCTGAGTAATGCAAGGTTATTTTAGAG
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                                                                                                                                                                                                                                                                                          CACTGGGAGCTGAGG----
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Sequence 2, Application Patent No. 6344548
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                                                       APPLICANT: Erickson, Sandra
TITLE OF INVENTION: Diacyld ycerol
TITLE OF INVENTION: sferase
NUMBER OF SEQUENCES: 6
                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                   TTTCCAGGGCAACTAT-------GGCAACGCAGCTGTGTGG---CTGTCGCTCAT
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                                                                                                                       Farese, Robert
Cases, Sylvaine
Smith, Steven
     Bozicevic & Reed
5 Hamilton Avenue,
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Best Local Similarity:
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LENGTH: 1650 base pairs
TYPE: nucleic acid
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MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Field, Bret E
REGISTRATION NUMBER: 37
REFERENCE/DOCKET NUMBER:
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APPLICANT:

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Sequence 2, Application US/09165042
Patent No. 6100077
GENERAL INFORMATION:
APPLICANT: Sturley, Stephen L.
APPLICANT: Oelkers, Peter
TITLE OF INVENTION: ACYLTRANSFERASE
FILE REFERENCE: 0575/56331
FILE REFERENCE: 0575/56331
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| GTTTCTTACGCTCATACTAACTATGACATAAGAACCCTAGCTAATTCATCTGATAAGGCC
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NUMBER OF SEQ ID NOS: 32
SOFTWARE: Patentin Ver. 2.0
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rGlyValThrLeuMetLeuLeuThr---CysIleValTrpLeuLysLeuValSerTyrAl
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||TTCAGAAATTCATATCTGAGCCTGTTGCCATCATTCTTCATGTCATTATAACCATGACA
                                                 IleLeuAlaGluLeuLeuCysPheGlyAspArgGluPheTyrLysAspTrpTrpAsnAla
                                                                                                                                 GluValLeuTyrProValTyrValThrLeuArgCysAspSerAlaPheLeuSerGlyVal
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                                        ATATTGGCAGAGCTCCTCTGCTTCGGGGGACCGTGAATTCTACAAAGATTGGTGGAATGCA
                                                                                GTTCCAAATCTATATGTGGGCTCTGCATGTTCTACTGCTTCTTCCACCTTTGGTTAAAC
                                                                                         ValProAsnLeuTyrValTrpLeuCysMetPheTyrCysPhePheHisLeuTrpLeuAsn
                                                                                                                       TCAAAGCATCCTCTGAAAGGGGACCTTCTATATGCTATTGAAAGAGTGTTGAAGCTTTCA
                                                                                                                                                              ATATTCACTGGACTCATGGGATTTATAATAGAGCAATATATAAATCCTATTGTTAGGAAC
                                                                                                                                                                        IlePheThrGlyPheMetGlyPheIleIleGluGlnTyrIleAsnProIleValArgAsn
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FEATURE:
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NAME/KEY: CDS
LOCATION: (82)..(1107)
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GENERAL INFORMATION:
APPLICANT: Laroche, Andre J.
APPLICANT: Nykiforuk, Cory L.
FILE OF INVENTION: Diacylglycerol O-acyltr
FILE REFERENCE: 24015US0
CURRENT APPLICATION NUMBER: US/09/593,359
CURRENT FILING DATE: 2000-06-14
NUMBER OF SEQ ID NOS: 17
SOCTWARE: Patentin Ver. 2.1
SEQ ID NO 1
LENGTH: 1446
TYPE: DNA
                                                                           PheThrValGluLysLeuValLeuGlnLysTyrIleSerGluProValValIlePheLeu
                                                                                                                                                                                                                             GluAsnLeuMetLysTyrGlyTrpLeuIleArgThrAspPheTrpPheSerSerArgSer
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                                                       GGACAACCGATGTGTGGGCTTCTTTATTACCATGACCTGATGAACCGCAAAGGATCCATG
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ValValLeuIleAlaValAsnSerArgLeuIleIleGluAsnLeuMetLysTyrGlyTrp
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                                                                                                                                                                                                   SerLeuLysSerLeuAlaTyrPheMetValAlaProThrLeuCysTyrGlnProSerTyr
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                                                                                                                                          CCACGTTCTGCATGTATACGGAAGGGTTGGGTGGCTCGTCAATTTGCAAAACTGGTCATA
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APPLICANT: Laroche, Andre J.
APPLICANT: Nykiforuk, Cory L.
APPLICANT: Weselake, Randall J.
TITLE OF INVENTION: Diacylglycerol O-acyltransferase
FILE REFERENCE: 24015US0
CURRENT APPLICATION NUMBER: US/09/593,359
CURRENT FILING DATE: 2000-06-14
NUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 3
LENCTH: 1512
TYPE: DNA
ORGANISM: Brassica napus
FEATURE:
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Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                               ; OTHER INFORMATION: DGAT1 ; NAME/KEY: CDS ; LOCATION: (1)..(1512) US-09-593-359-3
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                                 MetAlaIleLeuAspSerAlaGlyValThrThr---ValThrGluAsnGlyGlyGlyGlu
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Conservative:
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Indels:
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OM protein - nucleic search, using frame_plus_p2n model
                                                                                                 GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
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(without alignments)
2366.178 Million cell updates/sec

Title: Perfect score:

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BLOSUM62

Searched: 569978 seqs, 220691566 residues

Total number of hits satisfying chosen parameters: 1139956

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Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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Database :

Issued\_Patents\_NA:\*

Pred. No. score greater than or equal and is derived by analysis of is the number of results predicted by chance to have a ster than or equal to the score of the result being printed, rived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
ب	2771	100.0	1942	4	US-09-326-203A-1	Sequence 1, Appli
N	2309.5	83.3	1512	4	US-09-593-359-3	ω
ω	1833	66.1	1446	4	US-09-593-359-1	Sequence 1, Appli
4	794	28.7	1976	w	US-09-165-042-2	ν
Uī	773.5	27.9	1650	4	US-09-103-754A-2	Sequence 2, Appli
0	773.5	27.9	1766	4	US-09-326-203A-15	15
7	773.5	27.9	1766	4	US-09-326-203A-16	16
8	709.5	25.6	1895	4	US-09-326-203A-14	14
و	652.5	23.5	629	4	US-09-103-754A-3	ω
10	412.5	14.9	4011	ш	US-08-121-057-3	ω
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12	412.5	14.9	4011	N	US-09-121-396-3	Sequence 3, Appli

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## ALIGNMENTS

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		1942 520 0	Length: Matches: Conservative: Mismatches: Indels: Gaps:	Length: Matches: Conservativ Mismatches: Indels: Gaps:	2.91e-295 2771.00 1100.00% 100.00% 100.00%	Alignment Scores: Pred. No.: Score: Percent Similarity: Best Local Similarity: Query Match: DB:	Alignment Sc Pred. No.: Score: Percent Simi Best Local S Query Match: DB:
Nucleic	Related	sferase	Acyltran	olesterol ces 9/326,203# 8,143 8,389	44876 44876 LASSNEY, Mike LASSNEY, Diane ENTION: Acyl-CoA:Cholesterol Acyltransferase Related ENTION: Acid Sequences CE: 17045/00/W0 LCGATION NUMBER: US/09/326,203A NG DATE: 1999-06-04 ATION NUMBER: 60/088,143 ATION NUMBER: 60/108,389 ATION NUMBER: 60/108,389 DATE: 1998-11-12 Q ID NOS: 46 Q ID NOS: 46 Q ID NOS: 46 q tentin ver. 2.1 2 rabidopsis thaliana	; Patent No. 6444876 ; GENERAL INFORMATION: APPLICANT: LASSNET, Mike APPLICANT: LASSNET, Mike TITLE OF INVENTION: ACY1-CoA:Cholesterol. TITLE OF INVENTION: ACY1-CoA:Cholesterol. TITLE OF INVENTION: ACID Sequences FILE REFERENCE: 17045/00/WO CURRENT APPLICATION NUMBER: US/09/326,203A CURRENT FILING DATE: 1999-06-04 PRIOR APPLICATION NUMBER: 60/088,143 PRIOR APPLICATION NUMBER: 60/108,389 PRIOR APPLICATION NUMBER: 60/108,389 PRIOR FILING DATE: 1998-11-12 PRIOR FILING DATE: 1998-11-12 SOFTWARE: PATENTIN VET. 2.1 SEQ ID NO 1 LENGTH: 1942 TYPE: DIA ORGANISM: Arabidopsis thaliana US-09-326-203A-1	GENER GENER APPL ITITL I
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1 MetAlaIleLeuAspSerAlaGlyValThrThrValThrGluAsnGlyGlyGlyGluPhe 20

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	sValLeuTerTvrHisAspLeuMetAspArgLvsGlvSer 518	504
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1694		1635
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1634		1575
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405	uCysPheGlyAspArgGluPheTyrLysAspTrpTrpAsnAlaLysSerValGlyAspTy	385
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385	ITTPLeuCysMetPheTyrCysPhePheHisLeuTrpLeuAsnIleLeuAlaGluLeuLe	365
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365	SGlyAspLeuLeuTyrAlaIleGluArgValLeüLysLeuSerValProAsnLeuTyrVa	345
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325	SIleArgLySG1yTrpValAlaArgG1nPheAlaLySLeuValIlePheThrG1yPheMe	305
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305	uAlaTyrPheMetValAlaProThrLeuCysTyrGlnProSerTyrProArgSerAlaCy	285
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Search completed: August 31, 2003, 07:16:52 Job time : 4804 secs

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Nicotiana tabacum
Nicotiana tabacum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota; Viridiplantae; Streptophyta; eudicotyledons; core eudicots;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; lamidds; Solanales; Solanaceae; Nicotiana.

1 (bases 1 to 2099)

1 (bases 1 to 2099)
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AF129003 GI:6625652
                                                                                                                                                                                                                                 Direct Submission
Submitted (17-FEB-1999) Plant Molecular Biology Institute,
C.N.R.S., 28 rue Goethe, Strasbourg 67083, France
                                                                                                                                                                                                                                                                                                                       Expression in yeast and tobacco of plant CoA:diacylglycerol acyltransferase Eur. J. Blochem. 267 (1), 85-96 (2000)
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                                                                   /function="catalyzes the acylation of diacylglycerol
oleoylcoA to give triacylglycerol"
/note="similar to acyl-CoA cholesterol acyltransfera.
/translation="mvimelpesvemttttttggienlnsdlnhsvrrrrgsngfeaa
Sainssdanmsedrrdvcgsgagletvnersksvgessdvirkeddrndnvangeesk
                                                                                                                  /gene-"DAGAT"
208. .1806
                                                                                                                                                                 /mol_type="mRNA"
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/db_xref="taxon:4097"
                      /product="diacylglycerol acylCoA acyltransferase"
/protein_id="AAF19345.1"
/db_xref="GI:6625653"
                                                                                                                                                     /tissue_type="calli derived from
                                                                                                                                                                                                  /organism-"Nicotiana tabacum"
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STETTTTPFKFAYRASAPAHRRIKESPLSSDAIFKQSHAGLFNLCVVVLIAVNSRLII ENLMKYGLLIRAGFWFSSKSLROWPLLMCCLSLOILPLAAFLVEKLAQORHLTERAVV TLHITITTAAILYPVLUTLIGCDSAFLFGVILMLVACIVMKLVSYAHTNHDMRQLAKS TDKDETSDGDESYDVSFKSLAYFMVAPTLCYQLSYPHTPCIRKGWVARQPIKLVIFTG LMGFIIEQYINPIVQNSQHPLKGNLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNIL CILGOPMCVLLYYHDVMNRKSSAR" FLVSAVFHELCIAVPCRLFKWWAFMGIMFQVPLVILTNFLQNKFQSSMVGNMMFWCFF AELLCFGDREFYKDWWNAKTIDEYWRMWNMPVHKWMVRHIYFPCLRNGIPKGVAILIA

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21 ValAspLeuAsp-----ArgLeuArgArgLysSerArgSerAspSerSerAsn 1 MetAlaIleLeuAspSerAlaGlyValThrThrValThrGluAsnGlyGlyGlyGluPhe GATAGAAGAGATGTGTGTGGCAGCGGTGCTGGATTGGAAACGGTGAATGAGCGGAGTAAA GGTTTTGAGGCGGCTAGTGCAATTAACAGTTCG-----GlyLeuLeuLeuSerGlySerAspAsnAsnSerProSerAspAspValGlyAlaProAla CTCAACTCCGATCTTAATCACTCGGTTCGGAGGAGACGT------GGCAGTAAT ATGGAATTGCCGGAGAGCGTCGAAATGACGACGACGACGACGTTCGGGTATTGAGAAC AspValArgAspArgIleAspSer------ValValAsnAspAspAlaGln GATGCGAATATGAGCGAA 435 72 375 57 276 37 20

gProSerValProAlaHisArgArgAlaArgGluSerProLeuSerSerAspAlaIlePh GAATGGTGAGGAAAGCAAATCAACGGAAACAACGACGCCGTTTAAATTTGCTTACAG gGlyGlyGlyGluGlyArgGlyAsnAlaAspAlaThr------PheThrTyrAr TCGGTTGGTGAGTCCAGTGATGT - AATTCGAAAGGAGGACGACAGGAATGATAATGTTGC 494 128 554 108

92

GGCGTCGGCACCAGCTCACCGGCGAATCAAGGAGAGTCCTCTCAGCTCCGACGCCATTTT

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168 674 148 614

734

188

eProLeuAlaAlaPheThrValGluLysLeuValLeuGlnLysTyrIleSerGluProVa 208 794

lValIlePheLeuHisIleIleIleThrMetThrGluValLeuTyrProValTyrValTh GCCGCTCGCTGTTTTCTTGTGGAGAAGTTGGCACAGCAGAGGCATTTGACTGAGCGTGC 228 854

rLeuArgCysAspSerAlaPheLeuSerGlyValThrLeuMetLeuThrCysIleVa GGTGGTTACTCTTCACATAACTATAACAACAGCTGCCATTTTGTATCCAGTTCTGGTCAT 248 914 974

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116 434 314 96 374

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                                                                                 GCCGCACATCACACCACTCTT-----CGCCGGAGACAAAGTGCGCGCTCCGTTCCGCCT
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LHTITTVEILFPVVVILLRCDSAVLSGVTLMLFACTVWILKLVSFAHTNNDLRVLAKSLD
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CGGAGGGTGAGGGAGAGTCCTCTTAGCTCTGATGCAATCTTCAAACAGAGCCATGCGGGT
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VILTCDSVYMSGVVLMLFGCIMWLKLVSYAHTSSDIRFLKKSGVRGDAHPNSTIVSCS
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IVRNSKHPLKGDFLYAAIEVLKLSVPNLYVWLCMFYSFBHLWLNILAELLRFGDREFY
KDWWNAKTVAEYWKMWNMPVHRWMVRHLYFPCLRNGIPKEGAIIIAFLVSGAFHELCI
AVPCHVFKLMAFIGIMFQVPLVLITNYLQEKFSNSMVGNNIFWFIFCILGQPMCVLLY
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of Canada, Plant Biotechnology Institute, 110 Gymnasium
Saskatoon, SK S7N 0W9, Canada
Location/Qualifiers
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Submitted (09-MAR-2000) The Institute for Genomic Submitted 
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 (bases 1 to 97495)
Rounsley, S.D., Lin, X., Ketchum, K.A., Crosby, M.L., Sykes, S.M., Kaul, S., Mason, T.M., Kerlavage, A.R., Somerville, C.R. and Venter, J.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thaliana
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Arabidopsis thaliana chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lin
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arabidopsis thaliana (thale cress)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AC003058.3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 97495)
LEFRLQQTPRSTLPPIINAIETYRVNEFLQSPTDQQDVDAIMRIKSKYGVKKSWLGDP
CAPVKYPWKDINCSYVDNESPRIISVULSSGCLTGEIDAAFSNITLHHIDLISUNSLT
GKIPDFLGNIHNLTELNLEGNKLSGAIPVKLLERSNKKLILLRIDGNPDLCUSASCQI
SDEKTKKNYYIIPLVASVUGVLGLVLAIALFILLYKKHHRRGGSGVRAGPLDTTKRYY
KYSEVVKVTNNFERVLGQGGFGKVYHGVLNDDQVAVKILSESSAQGYKEFRAEVELLL
RVHHKNLTALIGYCHEGKKMALIYEFWANGTLGDYLSGEKSYVLSWEERLGISLDAAQ
GLEYLHNGCREPIQAGVKPANITLINEKLQAKIADFGLSRSVALDGNNQDTTAVAGTI
GYLDPEYHLTQKLSEKSDIYSFGVVLLEVVSGQPVIARSRTTAENIHTTDRVDLMLST
GYLDPEYHLTQKLSEKSDIYSFGVVLLEVVSGQFVIARSRTTAENIHTTDRVDLMLST
                                                                                                                                                                                                                                                                                                                      DRIWIPLRFPKYTIFNASLIIDSNNNEGFQPARFVMNTATSPEDLSQDIIFSWEPKDP
TWKYFVYMHFAEVVELPSNETREFKVLLNEKEINMSSFSPRYLYTDTLFVQNPVSGPK
                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="g1:3135251"
/taanslation="myhynellifacefayfyllyraqdqsgfysidcgipedssy
ndettdikyraydaafyesgtihsiddefotsslekofonyrsfpegnrkcydykrpog
kgfkylirtremygnydnigkapdfdlylgfnimdsytidnattiytkeiihtlrsdh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(join(<21. .429,506.
1129. 1340,1428. .1594,1710.
1129. .1344,2406. .2884,2963.
/gene="At2919210"
                                                                                                                                                                                                                                                                                                                                                                                            VHVCLVDKNRGTPFLSALEIRLLKSNTYETPYDSLILFKRWDLGGLGALPVRYKDDVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(join(21. .429,506.
1129. 1340,1428. .1594,1710.
2186. .2324,2406. .2884,2963.
/gene="%k2919210"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="overlap with BAC clo
(AC002392:95887. .105528)."
complement(21. .3689)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:3702"
/chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /mol_type="genomic D
/cultivar="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="putative receptor-like
/protein_id="AAC16451.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="synonym: F27F23.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'gene="At2g19210"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             map-"CIC06E08"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .97495
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ..695,770..832,927..1053,
.1790,1882..1953,2038..2109,
.3509,3602..>3689))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .695,770. .832,927. .10:
.1790,1882. .1953,2038.
.3509,3602. .3689))
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Brandon, R.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Research,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .1053,
038. .2109,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
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                                                                                                                                                                                                                                                        ....e="synonym: F27F23.4; predicted by genscan" complement(join(<13430. .13585,13844. .15762,16010. 16516. .16604,16763. .>16944))
/gene="At2g19240" complement":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(join(<9141 .9558,9652 .9841,9925 .9987,
10073 .10199,10282 .10478,10565 .10722,10838 .10918,
11004 .11075,11166 .11237,11314 .11452,11535 .12019,
12091 .1237,12729 .>12813))
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                                                                                                                                                                                                        complement(join(13430. .13585,13844. .15762,16010. .16186, 16516. .16604,16763. .16944))
                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(13430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(11138. .11160)
/rpt_family="AT_rich"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FLEFVLRQCVKSTRPPIMNALETYRTNEFLLLPTDQNDVDAIMLKTKYKYKKNWLGD
PCAPEGYPWQGINCSYTANNPPRIISVNLSFSLTGQIDPVFITLTPLQKLDLSNNRL
TGTVPDFLANLPDLTELNLEENKLTGILPEKLLERSKOGSLSLRVGGNPDLCVSDSCF
TGTVPDFLANLPDLTELNLEENKLTGILPEKLLERSKOGSLSLRVGGNPLDTKRYYKYSEIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_family="AT_rich"
complement(9141. .128)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PHADKLATIFKGRIEPGKTKTRRYRKRVIDHHSESPQLHDHQPTPSSVVVNTNEPVKG
SDDRAEDGNVEPTSLIRSDSEDVAETVTPEMMEKIPVNASVKKKEKFTFEECVECLDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(join(5060. .5590,5665. .6171,6262. .6543))
/gene="At2g19220"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(5018. .5047)
/rpt_family="AT_rich"
                                /product="hypothetical protein"
/protein_id="AAC16454.1"
/db_xref="GI:3135254"
                                                                                                                                                                                                                                                                                                                                                                                            /gene="At2g19240"
/note="arms-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEPTEMNVSMTVDPGVLPQPR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YSMQQFSEKSDVYSFGVVLLEVITGQPVISRSRTEENRHISDRVSLMLSKGDIKSIVD
PKLGERFNAGLAWKITEVALACASESTKTRLTMSQVVAELKESLCRARTSGDSGDISF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCKPPIVHRDVKPTNILINEKLQAKIADFGLSRSFTLEGDSQVSTEVAGTIGYLDPEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ITNNFERVLGOGGFGKVYYGVLRGEQVAIKMLSKSSAQGYKEFRAEVELLLRVHHKNL
IALIGYCHEGDQMALIYEYIGNGTLGDYLSGKNSSILSWEERLQISLDAAOGLEYLHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HVCLVDKERGTPFLSYLELRLLKNNIYETASDSLMLYRRWDLGATGDLPARYKDDIFD
RFWMPLMFPNFLILNTSLMIDPTSSNGFLPPSVVMSTAVAPMNSSIEQIMVYWEPRDP
NWKFYIYIHFAEVEKLPSNETREFSVFLNKEQIDTTSVFRPSYLYTDTLYVQNPVSGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GFKYLIRTRFMYGNYDNLGKAPDFDLYLGVNLWDSVTLENSTTIVTKEIIYTLRSDKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEKTDIKYISDAAFVESGTIHSIDSKFQKKNLEKQFQKVRSFPEGKKNCYDVQPPQGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="putative receptor-like protein kinase"
/protein_id="AAC16453.1"
/db_xref="GI:3135253"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(join(9141. .9558,9652. .9841,9925. .9987,
10073. 10199,10282. .10478,10555. .10722,10838. .10918,
11004. .11075,11166. .11237,11314. .11452,11535. .12019,
12091. .12637,12729. .12813))
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/note="gummark...12813)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (5603. .5623)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IEEVEKGGDLYMFALDLFKTKDYRYLFLMLQKSSLRMAWLLKLLSNP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RHYKWSPSSHAIVVDTCFQESLKGIRPIKRNHLFTKESWKMILEKINRITGLGYTHKQ
LENHFTRTRTSWKHWCETIASPIMKWDANTRKFGATEEDWDKYLMINKRARVFKRRHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FTIDQLINHWDTMIKQWKIWCRLVQCKDIKWDSLTNTFGATDQEWANYLEVNPEAGGY
RCNPPLFLEKLEIIFAGMNLDGEGTSSGSKMKQICEHRDEENVTGYVPRLSASDIATR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="hypothetical protein"
/protein_id="AAC16452.1"
/db_xref="GI:3135252"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (5060
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/note="even-"
                                                                                                                                              /codon_start=1
                                                                                                                                                                               /gene="At2g19240"
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   translation="MAPSEIEPALQEPSGSLVLSREDRRFANLRGVRWRVNLGVLPSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   translation="MGNFNFLPLVSFASFVVVLVLVCAQDQSGFVSIDCGIPEDSSYY"
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.6171,6262. .>6543))
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377 377	4 TCTCTTTCAAAATAATTTGCAAAATTCGAAAAAACCGAAAAAAGGCTAAATCTCATACGAATT 23093	377	363 LeuTyrValTrpLeuCysMetPheTyrCysPhePheHisLeuTrp	22914 CCTTTGAAAGGCGATCTTCTATATGCTATTGAAAGAGTGTTGAAGCTTTCAGTTCCAAAT 22973	3 ProLeuLysGlyAspLeuLeuTyrAlaIleGluArgValLeuLysLeuSerValProAsn 362	331GlnTyrIleAsnProlleValArgAsnSerLysHis 342	4 TCTTGCTTTATTAGTTTTCCTTGGTGAAAATCATCATCCCTGCGTTGTCACCACTTGACT 22853	30	6 laLysLeuValIlePheThrGlyPheMetGlyPheIleIleGlu 330     330     330     330	297GInProSerTyrProArgSerAlaCysIleArgLysGlyTrpValAlaArgGlnPheA 316	22614 GCATCAACCATTCTTATACTTGCAAGAGTTTCTTGTCTAAACCTCGGATCTTTGCTTTTC 22673	296 296	205 GLLYSSELEUMATHTY FRENECVALALAFFOTRILEUCYSTYF 296	94 TTTTAACCAAACACTGTTATGAACTTTAAGGCCAATCCTGAAGTCTCCTACTTAGGTTAGGT 22553	3 282		269 ] AARDI VAA   A	69		22314	229			8	22075 GAGTAATTACTATTCTCCAGCCATTACTGTAATTTTTATTGAAGACAAGTTTGTATCATG 22134	207 207	188 eProLeuAlaAlaPheThrValGluLySLeuValLeuGlnLySTyrTleSerGluPro 207
Qy 514 AsnArgLysGlySerMetSer 520	Db 24111 TTCATCTTCTGCATTTTCGGACAACCGATGTGTGTGTGTCTTTATTACCACGACCTGATG 24170	Qy 494 PheIlePheCysIlePheGlyGlnProMetCysValLeuLeuTyrTyrHisAspLeuMet 513	24051 ATAAAGGTGATCTGTTTTGGAATGGGATCATATTATTAGGTGGGGAACATGATCTTCTGG	Db 23991 GAACGAATAACTCTTTCATTAGCCTAGCCATTTAAATCGCAATGCTGAAACTTAATA 24050	Qý 487 487	23	23872 AACTCTAATCTCATATTCTGACCAACCAATTTGTTTGAGTAGGTGCCTTTGGTCTTCATC	Qy 470ValProLeuValPheIle 475	Db 23812 TTTCTTGGGATTATGTTTCAGGTTAAAAAATTACTAAACTGCTGCAGTCGATTTTTACTA 23871	23752 CABATTICCTITTGACAGCTATGCATCGCAGTICCTIGTCGTCTCTAAGCTATGGGCT	Qy 449LeuCysIleAlaValProCysArqLeuPheLysLeuTrpAla 462	22602 VICTOR OR OF TO THE REPORT OF THE VICTOR OF THE VICT	23632 GCAGTCTTTCATGAGGTATACATACTTTCTACATTGCCCTGTCTCTAGACGCATGAACAC	444 AlaValPheHisGlu	Db 23572 TTAACCCTCCACACACTTGTTTTTCAGACACTCGCCATTATCATTGCTTTCCTAGTCTCT 23631	23513 AA-GGTGAGTGAGATATATACCGATATGCAATTGTCGAGATTTTGTTTCTGTGATATAAAT	Qy 432 Lys432	OY 412 PTOVALHISLYSTIPMETVALATGHISLIETYTPHEPTOCYSLENATGSETLYSILEPTO 431	23393 CCTTCTTTTGTACACAAAATAGAAGAAGAGAGCTAATTAAGATCTTGTTTTCCTTGACAG	Qy 4,11 411	Db 23333 GTCTTCCTTTATCAGTACTGGAGAATGTGGAATATGGTATGGTTCTCTTCCTTAAACATCA 23392	23273 TGATTTTTAATGTTGTCGTTGTTTTTGGGTCATCTAACTAA	Qy 404 404	23214 GATTGGTGGAATGCAAAAAGTGTGGGAAGA-TGTGAGCTATTTTACTCAAAAAGAAAACTTA	395 AspTrpTrpAsnAlaLvsServAlGlvAsp	Qy         3/8	23094 TGATATTTTTAGTTTCTTAGAGTCGGTGATGTAATTTCAGTTACTGAACGCAAATCTCTT

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/rpt_family="AT_rich"
complement(17023...170
                                                                                                                                                                                                                                                                                                                                       /note="synonym: F3P11.6; predicted by genefinder;
supported by cDNA: gi_14334633_gb_AY034990 1_"
26221    .26844
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ATFTYRSVPAHRARSSPLSSDAIFKQSHAGLFHLCVVVLIAVNSRLIIENLMKYGW
LIRTDEWFSSRSLRDWBLFHCITISIFPLARFTVEKLVLQKYISEPVPITLHIIITH
TEVLYPVYTLKCDSAFLSGVFLMLLTCIVWLKLVSYAHTSYDIRSLANADKANPEV
SYYVSLKSLAYEMVAPTLCYQPSYPRSACIRKGWYARQFAKLVIFTGEWGFILEQYIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="synonym: F3P11.5; supported by cDNA:
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g1_15450799_gb_AY054480 1_"
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22170. .2237,22319. .22442,22523. .22600,22679. .22780,
22881. .23017,23162. .23243,23348. .23368,23453. .23515,
23599. .23646,23770. .23832,23914. .23964,24090. .24475)
//gene="At2g19450"
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17599
                  /note="synonym: F3P11.7; supported by full length cDNA: Ceres:2312"
                                                        complement(26742. .26772)
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complement(28356: .31273)
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complement(25990. .26015)
/rpt_family="AT_rich"
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17139. .17462
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YKDWWNAKSVGDYWRMWNMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELC
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TSYTDYPTRIPEDQNPKKGRSSSSSSWGFVDPDLQRKKRVVSYRAYTVEGKLKGSFRK
                                                                                                                                                                                                 /product="expressed protein"
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sequence - a consensus."
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/codon_start=1
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lement(join(<28356.
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                    TTAGTGATCAAGTTCCTCTTTGATTCTTTCTTTGTTGCAGTATATCCCTTTCGATCTT
                                                                                               GTAAAAGAAGATGTTTTTTATTTCCAGCAATGTTACATTGTTATACGTATAATGATGAGT 21954
                                                                                                                                                                             CAGAACGGATTTCTGGTTTAGTTCAAGATCGCTGCGAGATTGGCCGCTTTTCATGTGTTG 21894
                                                                                                                                                                                                 eArgThrAspPheTrpPheSerSerArgSerLeuArgAspTrpProLeuPheMet-----
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US-09-623-514A-2 (1-520) x AC005917 (1-92822)
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                                                                                       153 GluAsnLeuMetLys-----
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29244. .29326,29422. .29548,29658. .29742,29822. .29885
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (27-FEB-2002) The Institute Medical Center Dr. Rockville, MD 2085(On Apr 18, 2002 this sequence version Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (09-MAR-2000) The Institute for Genomic Research, Medical Center Dr., Rockville, MD 20850, USA 3 (bases 1 to 92822)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complete sequence. AC005917
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                                                                                      /note="overlap with BAC clone F27F23 (AC003058:69644...97495)." complement(2151...2171) /rpt_family="AT_rich" complement(5234...5268) /rpt_family="AT_rich" 5488...5517
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                                                                                                                                                                                                                                                                                                                        'clone="F3P11"
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9624 . .9757
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FDGARFVDDNGIAYTNVFDANFDTLVSALKAVGHGDMPIIVEGVGPTFEGDKHANSGS
AYRFVNGLLPRLGENRGTPLRPTYIEVYLFGLLDEDAKSIAPGEFERHWGIFKFDGQP
KFPIDLSGQGQNKLLIGAENVTYQPKKWCMFNTEAKDLTKLANNIYKGTFSDCTALG
GYGSSCNTLDANGNAYYAFNNYFQVKNDDEDACIFQGIATITTKNISQGQCNFPIQIVA
TGSSCNTLDANGNAYYAFNNYFQVKNDDEDACIFQGIATITTKNISQGGCNFPIQIVA
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complement(16668..16701)
/rpt_family="AT_rich"
                                                                                                                 complement(16223. .16264)
/rpt_family="AT_rich"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(join(<12903. .13516,13584. .14083,14223.
/gene="At2g19440"
complement(join(12903. .13516,13584. .14083,14223.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(12903. .14545)
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ASECVGTIPIPAHVQDVMFDEKQVVAVGGYGGTVDVISQFGSHLCTFRSSSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Join(9956. .10281,10369. .10445,10527. .10572,10700. .10760, 10849. .10902,10993. .11073,11165. .11204,11477. .11577, 11750. .11860,12390. .12479)
//gene_"At2919430"
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усти(<9956. .10281,10369. .10445,10527. .10572,10700. .10760, 

10849. .10902,10993. .11073,11165. .11204,11477. .11577, 

/gene-"Att2919430" .>12479) 

1011/0055
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complement(7164...7241)
                                                                                                                                                                                                          /rpt_family="AT_rich"
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                                                                                                                                                                                                                                                               sequence -
15590. .15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="putative beta-1,3-glucanase"
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                                                                                                                                                                                                                                                                                                                     /rpt_family="Rf:ATREP5|ATREP5
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                                                                                                                                                                                                                                                                     .15728
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ISOlation and Characterization of a cDNA Encoding a Second Putative Diacylelycerol Acyltransferase from a Microspore-derived Cell Suspension Culture of Brassica napus L. cv Jet Neuf (Accession No Api64434), (PGR99-158)
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Nykiforuk,C.L., Laroche,A. and Weselake,R.J.
Direct Submission
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Eukaryota; Viridiplantae; Streptophyta;
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mRNA, complete cds.
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AF164434.1 GI:5579407
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                               LeuLeuSerGlySerAspAsnAsnSerProSerAspAspValGlyAlaProAlaAspVal
                                                                                     PheValAspLeuAspArgLeuArgArgArgLysSerArgSerAspSerSerAsnGlyLeu
                                                                                                                                                     MetAlaIleLeuAspSerAlaGlyValThrThr---ValThrGluAsnGlyGlyGlyGlu
                                                                       GTCGCGGATCTCGACAGGCTCCACCGTCGTAAATCGAGTTCGGATTCTTCCAACGGACTC
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Physiol. 121 (3), 1053 (1999)
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DDVGAAABERDRVDSAABEEAQGTANLAGGDAETESAGGDVBLTSTYRPSVPAHRRTRE
SPLSSDAIFKQSHAGLENLCYVVLVAVNSKLIIENLMKYGWLLRTDFWFSYSLDWB
LFMCCLSLSVFPLAAFTVEKMVLQKFISEPVAIILHVIITMTEVLYPVYVTLRCDSAF
LSGVFILMLLTCIVWLKLVSYAHTSYDLRTLANSADKVDFISYVSLKSLAYPMVAPT
LCYQPSYPRSPCIRKGWYARQLAKVJIFTGLMGFIIEQVINDIVRNSKHPLKGDLYA
IËRVLKLSVPNLYWLCMFYCFFHLWLNILAELLCFGDREFYKDWNAKSVGDYWRMM,
MMPVHKMMVRHVYFPCLRIKIPKVPAIIIAFLSGASCIFGQPMCGLLYYHDLMNRKGSMS"
363 g 462 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="putative diacylglycerol
/protein_id="AAD45536.1"
/db_xref="GI:5579408"
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/EC_number="2.3.1.20"
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/db_xref="taxon:3708"
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HisIleTyrPheProCysLeuArgSerLysIleProLysThrLeuAlaIleIleIleAla
                                                                                                                                                                                           TCAAAGCATCCTCTGAAAGGGGACCTTCTATATGCTATTGAAAGAGTGTTGAAGCTTTCA
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Direct Submission
Submitted (04-APR-2000) Biolog
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                                                                                                                                        GTGGATGTAAGGTACACGTATCGGCCGTCGGTTCCAGCTCATCGGAGGGTGCGGGAGAGT
                                                                                                                                                      AlaAspAlaThrPheThrTyrArgProSerValProAlaHisArgArgAlaArgGluSer
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PVHKWMVRHVYFPCLERNIPKVPAIILAFLLGFGDRESYKDWNNAKSVGDYWRWNM
PVHKWMVRHYFFPCLERNIPKVPAIILAFLYSAVFHELCIAVPCRLFKLWAFLGIMFQ
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DNNSFSDDVGAPADVRDRIDSYVNDDAQGTANLAGDNNGGGDNNGGGRGGEEGGMAD
ATFTYRPSVPAHRRARESPLSSDATENGSAFTVEKLVLQKYISEPVVIFLHIITYM
LIRTDEWFSSRSLRDWPLFMCCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIITYM
TEVLYPVYTLRCDSAFLSGVTLMLLTCIVMLKLVSYAHTSYDIRSLANAADKANPEV
SYYVSLKSLAYEMVAPTLCYQPSYPRSACIRKGWYARQFAKLVITGFWGFILEQYIN
PIVRNSKHPLKGDLLYAIERVLKLYSVNLYWLCMFYCFFHLWLNILAELLCFFGDREF
YKDWWNAKSVGDYWRMWNMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELC
LAVPCRLFKLMAFLGIMFQVPLVFITNYLQERFGSTVGNMIFWFIFCIFGQPMCVLLY
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                             Discourage of a putative diacylglycerol
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                      Characterization of a putative from Brassica napus embryo
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                                                                         LeuAlaGluLeuLeuCysPheGlyAspArgGluPheTyrLysAspTrpTrpAsnAlaLys
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Southwick, A., (Stepular to this was (SSP/Stanford)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Palm.C.J., Bowser,L., Jones,T., Banh,J., Carninci,P., Chen,H., Cheuk,R., Chung,M.K., Hayashizaki,Y., Ishida,J., Kamiya,A., Kawai,J., Kim.C., Lin,J., Liu,S.X., Narusaka,M., Pham,P.K., Sakano,H., Sakurai,T., Satou,M., Seki,M., Shinn,P., Yamada,K., Shinozaki,K., Ecker,J., Theologis,A. and Davis,R.W.
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Southwick, A., Karlin Neumann, G.,
Palm, C.J., Bowser, L., Jones T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL CDNA: ''', RIKEN Arabidopsis Full-Length CDNA''): Sekl.M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J.,
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Submitted (28-AUG-2001) DNA Sequencing and 1
Stanford University, 855 California Avenue,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 2005)
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/codon_start=1
/product="diacylglycerol
/protein_id="AAK96671.1"
/db_xref="GI:15450800"
                                                                                                                                                                                                                                                                            /organism="Arabidopsis
/mol_type="mRNA"
                                                                                            /gene="At2g19450;
                                                                                                                                                                                       /note="This clone
                                                                                                                                                                                                          /chromosome="II"
/clone="RAFL07-14-014"
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Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
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/gene="Dgat"
/function="lipid:
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DNUSSEDUGAPADVEDRIDSVVNDDAQGTANLAGDNNGGGDNNGGGEGGGEGRGNAD
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LIRTDFWFSSRSLRDWPLFMCCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHILITM
TEVLYPVYVTLRCDSAFLSGVTLMLLTCIVWLKIVSYAHTSYDIRSLANADKANPEV
SYYVSLKSLAYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYIN
PIVRNSKHPLKGDLLIXAIERVLKLSVPNLYVNLCMFYCFFHLMLNILAELLCFGDREF
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/mol_type="mRNA"
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IAVPCRLFKLWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFWFIFCIFGQPMCVLLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="diacylglycerol acyltransferase"
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Arabidopsis thaliana complete cds.
AF051849 AF061563
                                                                                     Schaller,H.
Expression in yeast and tobacco of plant CoA:diacylglycerol acyltransferase Eur. J. Biochem. 267.(1), 85-96 (2000)
                                                                                                                                                     Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
1 (bases 1 to 1845)
Bouvier-Nave,P., Benveniste,P., Oelkers,P., Sturley,S.L. and
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PIVRNSKHPLKGDLLYALERVLKLSVPNLYVWLCMFYCFFHLWINILAELLCFGDREF
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/protein_id="AAF19262.1"
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oleoylcoA to give triacylglycerol"
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/clone_lib="ABRC library, catalog
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The Salk, Stanford, PGEC (SSP) Consortium members constructed and sequenced the pUNI (ORE) clones using the RAFL cDNAS: Kim,C.J., Chen,H., Cheuk,R., Shinn,P., Boweer,L., Chan,M.M., Chang,C.M., Dale,J.M., Jones,T., Karlin-Neumann,G., Lam,B., Lee,J.M., Lin,J., Miranda,M., Nguyen,M., Onodera, C.S., Palm,C.J., Quach,H.L., Southwick,A., Tang,C.C., Toriumi,M., Wong,C.J., Wu,H.C., Yamada,K., Yu,G., Davis,R.W., Theologis,A., and Ecker,J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL CDNAs (RAFL CDNA: 'RIKEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kim,C.J. (SSP/Salk) and Seki,M. (RIKEN GSC) this work; Shinozaki,K. (RIKEN GSC) and Ecl contributed equally to this work as PIs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hayashizaki, Y. and Shinozaki, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (13-JUN-2003) Salk Institute Genomic Analysis Laboratory (SIGNAL), Plant Biology Laboratory, The Salk Institute for Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and Ecker, J.R
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Arabidopsis ORF clones
Unpublished
2 (bases 1 to 1563)
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Karlin-Neumann,G., Kawai,J., Lam,B., Lin,J., Miranda,M.,
Narusaka,M., Nguyen,M., Onodera,C.S., Palm,C.J., Quach,H.L.,
Sakurai,T., Satou,M., Seki,M., Southwick,A., Toriumi,M., Wong,C.,
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Kim,C.J., Chen,H., Cheuk,R., Shinn,P.,
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      TEVLYPYYTLRCDSAFLSGYTLMLLTCIVWLKLVSYAHTSYDIRSLANAADKANPEV
SYYYSLKSLAYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYIN
PIVRNSKHPLKGDLLYAIERVLKLSVPNLYVWLCMFYCFFHLMLNILAELLCFGDREF
                                                                                             DNNSPSDDVGAPADVRDRIDSVVNDDAQGTANLAGDNNGGGDNNGGGRGGGEGRGNAD
ATFTYRPSVPAHRRARESPLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMKYGW
LIRTDFWFSSRSLRDWPLFMCCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITM
                                                                                                                                                                                                                                                                                                                                                                                                        ecotype:
                                                                                                                                                                                                                   /protein_id="AAP68322.1"
/db_xref="GI:31711932"
                                                                                                                                                                                                                                                                            /product-"At2g19450"
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/chromosome="2"
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/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                              'codon_start=
                                                                                                                                                                                                                                                                                                                                          'note="diacylglycerol O-acyltransferase"
                                                                                                                                                                                                                                                                                                                                                                                                                                 note="This clone is in pUNI 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="U16373"
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                                                                                                                                                                                       translation="MAILDSAGVTTVTENGGGEFVDLDRLRRKSRSDSSNGLLLSGS
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220	tThrGlu	Оу 201	_
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180		Qy 161	_
8		42	_
160	ש	0у 141	_
420	CCACTTAGCTCCGACGCAATCTTCAAACAGAGCCATGCCGGATTATTCAACCTCTGTGTA	Db 361	_
140		Qy 121	_
360	GCCGATGCTACGTTTACGTATCGACCGTCGGTTCCAGCTCATCGGAGGGGCGAGAGAGA	Db 301	_
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100	lyArgGlyAsn	Qу 81	_
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60	uSerGlySerAspAsnAsnSerProSerAspAspValGlyAlaProAlaAspValArg	Qy 41	_
120	GTCGATCTTGATAGGCTTCGTCGACGGAAATCGAGATCGGATTCTTCTAACGGACTTCTT	Db 61	
40	AspLeuAspArgLeuArgArgArgLysSerArgSerAspSerSerAsnGlyLeuLeu	Оу 21	_
60	MECALALIELEUAS PSETALAGLYVALTHITHTAVALTHIGLUAS GLYGLYGLUPHE	Db 1	
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-Q-/cgn2_1/USPTO_Spool/US0623514/runat_29082003_152159_54/app_query.fasta_1.711
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-USER-US09623514_eCGN.1_1_5265_erunat_29082003_152159_54 -NCPU-6 -ICPU-3
-NO_MMAP -LARGEQUERY -NEG_SCORES-0 -WAIT -DSPBLOCK=100 -LONGLOG
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SUMMARIES

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ALIGNMENTS

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                                 CysPheGlyAspArgGluPheTyrLysAspTrpTrpAsnAlaLysSerValGlyAspTyr
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homeostasis. The present sequence is the coding sequence of human ACAT Related Gene Product 1 (ARGP1). The enzyme encoded by the present sequence is a diacylglycerol acyltransferase (DGAT). ARGP1 does not esterify cholesterol. It is thought therefore that ARGP1 participates in the Coenzyme A-dependent acylation of substrate(s) other than cholesterol ey diacylglycerol. Also, ARGP1 has a predicted diacylglycerol binding motif, suggesting that it may perform the last acylation in triglyceride biosynthesis. ARGP1 gene and protein are useful for treating a subject esterification of diglycerol, via gene therapy. Particularly, ARGP1 is useful for treating hypertriglyceridemaia, hyperlighdaemia, atherosclerosis, heart disease, obesity or other diseases associated with
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                                                 The enzyme acyl Coenzyme A-cholesterol acyltransferase 1 (ACAT1) mediates sterol esterification, an important component of intracellular lipid
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                                                                                                                                                                                                                                           Polynucleotides encoding diacylglycerol acetyltransferase, useful for synthesis of triacylglycerols and increasing the level of oils in plant
                                                                                                                                                                                                                                                                                                                          In the present invention, cDNA libraries from Arabidopsis, corn, rice, soybean and wheat were screened for sequences with homology to a putative acyl COA cholesterol acyltransferase related gene from Arabidopsis thallana and diacylglycerol acyltransferases from Homo sapiens and Mus musculus. The cDNA clones identified from this process were used to form complete diacylglycerol acyltransferase cDNA sequences. The present sequence is corn diacylglycerol acyltransferase cDNA from a contig of clones p0042. cspaf49r, p0122.ckamb5fr and p0125.czaau61rb. Diacylglycerol acyltransferases are involved in the synthesis of triacylglycerols. Alteration of the expression of the diacylglycerol acyltransferase DNA can be useful for increasing the level of oils in plant seeds. Inhibitors of diacylglycerol
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                                                                                                                                                                       rValProAsnLeuTyrValTrpLeuCysMetPheTyrCysPhePheHisLeuTrpLeuAs
                                                                                               319 lilePheThrGlyPheMetGlyPheileIleGluGlnTyrileAsnProileValArgAs
                                                                                                                 ATTACCAAATGTCTACCTGTGGCTTTGCATGTTTTATTGCCTTTTCCATCTGTGGTTAAA
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/transl_except= (pos:490..492,aa:Xaa)
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/transl_except= (pos:805..807,aa:Xaa)
/transl_except= (pos:820..822,aa:Xaa)
/note= "Xaa= unknown"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 168 PheSerSerArgSerLeuArgAspTrpProLeuPheMetCysCysIleSerLeuSerIle 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITAATGCTACATCATTGCGAGACTGGCCACTGCTAATGTGTGTTGCCTTAGTCTACCATA 60
                                                                                                                                                                                                                                                            Polynucleotides encoding diacylglycerol acetyltransferase, useful for synthesis of triacylglycerols and increasing the level of oils in plant
                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thallan and discyldycerol acytransferases from Homo sapiens and was musculus. The cDNA clones identified from this process were used to form complete diacylglycerol acytransferase cDNA sequences. The present sequence is corn diacylglycerol acyltransferase cDNA sequences. The present sequence is corn diacylglycerol acyltransferase cDNA from a contig of clones cpllc.pk005.h32, cen3n.pk0010.c10, ccol.pk0029.b6. Diacylglycerol acyltransferases are involved in the synthesis of triacylglycerol acyltransferases are involved in the diacylglycerol acyltransferase DNA can be useful for increasing the acyltransferase may be useful as herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PheProLeuAlaAlaPheThrValGluLysLeuValLeuGlnLysTyrIleSerGluPro
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                                                                                                                                                                                                                                                                                                                                                        In the present invention, cDNA libraries from Arabidopsis, corn, soybean and wheat were screened for sequences with homology to a putative acyl COA cholesterol acyltransferase related gene from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1281 BP; 351 A; 256 C; 245 G; 417 T; 12 other;
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                                                                                                                                                                                                                                                                                                                        Claim 15; Page 40-42; 62pp; English.
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Best Local Similarity:
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31-MAR-1999;
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TCATTACCAAATGICTACCIGIGGCITTGCAIGTITTATIGCCITTICCAICTGIGGITA 660
                                                                                                                                                              ArgHisIleTyrPheProCysLeuArgSerLysIleProLysThrLeuAlaIleIleIle 438
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                               AsnIleLeuAlaGluLeuLeuCysPheGlyAspArgGluPheTyrLysAspTrpTrpAsn
                                                  AlaLysSerValGlyAspTyrTrpArgMetTrpAsnMetProValHisLysTrpMetVal
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/note= "xaa= unknown"
/transl_except= (pos:869..889,aa:YVLEL)
/product= Partial_diacylglycerol_acyltransferase
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/note= "This codon has an apparent 1 nucl.
insertion which alters the reading frame"
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                                                                                                                                                                                                GlnGluArgPheGlySerThr---ValGlyAsnMetIlePheTrpPheIlePheCysIle 498
                                                                                                                                                                    LeuTrpAlaPheLeuGlyIleMetPheGlnValProLeuValPheIleThrAsnTyrLeu
        SerLysHisProLeuLysGlyAspLeuLeuTyrAlaIleGluArgValLeuLysLeuSer
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/product= Partial_diacylglycerol_acyltransferase
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trlacylglycerol; herbicide; EC2.3.1.20; ss.
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P-PSDB; AAY94515.
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Polynucleotides encoding diacylglycerol acetyltransferase, useful for synthesis of triacylglycerols and increasing the level of oils in plant
                                                                                                                                   In the present invention, cDNA libraries from Arabidopsis, corn, rice, soybean and wheat were screened for sequences with homology to a putative acyl COA cholesterol acyltransferase related gene from Arabidopsis thallane and diacylglycerol acyltransferase from Homo sapiens and Mus musculus. The CDNA clones identified from this process were used to form complete diacylglycerol acyltransferase CDNA sequences. The present sequence is corn diacylglycerol acyltransferase cDNA from clone cpilc.pk005.h3. Diacylglycerol acyltransferase are involved in the synthesis of triacylglycerols. Alteration of the expression of the diacylglycerol acyltransferases are increasing the level of oils in plant seeds. Inhibitors of diacylglycerol acyltransferase may be useful as herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ::: ||| :: ||| ::31 ATCACAAGCGCAAGAAGGTGATAATTTACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361 GCTCCAACTCTTGGGAGTCTAACATACATGATGGCTCCGAACTCTGTTATCAGCCA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     279 TyrValSerLeuLysSerLeuAlaTyrPheMetValAlaProThrLeuCysTyrGlnPro
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1559 BP; 413 A; 299 C; 288 G; 555 T; 4 other;
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                                                                                             Claim 4; Page 44-45; 62pp; English.
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                                      .080 CICCATGAGATATGIGICCCTGTTCCCTGCCGCATTCTCAAGTTCTGGGCATTCTTAGGA 1139
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plant
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                                                                     IleMetPheGlnValProLeuValPheIleThrAsnTyrLeuGlnGluArgPheGlySer
                                                                                      Thr---ValGlyAsnMetIlePheTrpPheIlePheCysIlePheGlyGlnProMetCys
                        446 PheHisGluLeuCysIleAlaValProCysArgLeuPheLysLeuTrpAlaPheLeuGly
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                                                                                                                                                                                                                                                                                                                                            Diacylglycerol acyltransferase; corn; rice; soybean; wheat; trlacylglycerol; herbicide; EC2.3.1.20; ss.
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/product= Diacylglycerol_transferase
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                                                                                                                                                                                                                                            AAA48942 standard; cDNA; 1975
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99US-0127111.
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P-PSDB; AAY94522.
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                                    93 GlyGlyGluGlyArgGlyAsnAlaAspAlaThrPheThrTyrArgProSerValPro
                                                                                                                                133 AlaGlyLeuPheAsnLeuCysValValValLeuIleAlaValAsnSerArgLeuIleIle
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540 GATAATGAACTAAGGACAGGATAATTTACAACCTCCAACTTTAGGAATCTA
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In the present invention, cDNA libraries from Arabidopsis, corn, rice, soybean and wheat were screened for sequences with homology to a putative acyl CoA cholesterol acyltransferase related gene from Arabidopsis thaliana and diacylglycerol acyltransferases from Homosapiens and Mus musculus. The cDNA clones identified from this process were used to form complete diacylglycerol acyltransferase cDNA sequences. The present sequence is rice diacylglycerol acyltransferase cDNA from clone ris24.pk0034.d8:fis. Diacylglycerol acyltransferase are involved in the synthesis of triacylglycerols. Alteration of the expression of the diacylglycerol acyltransferase and expression of the diacylglycerol acyltransferase and be useful for diacylglycerol acyltransferase may be useful as herbicides.
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                                                                                                                                                                                                                                                                                                         /note= "The CDS of this sequence only encodes amino acids 70 to 500 of the protein in AAY94518"
                                                                                                                                                                                                    Diacylglycerol acyltransferase; corn; rice; soybean; wheat; trlacylglycerol; herbicide; EC2.3.1.20; ss.
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                                                                                                                                                                        Polynucleotides encoding diacylglycerol acetyltransferase, useful for synthesis of triacylglycerols and increasing the level of oils in plant
                                                                                                                                                                                                                                                                   soybean and wheat were screened for sequences with homology to a putative acyl Coa cholesterol acyltransferase related gene from Arabidopsis thaliana and diacyllaycerol acyltransferases from Homo sapiens and Mus musculus. The cDNA clones identified from this process were used to form complete diacyllycerol acyltransferase cDNA sequences. The present sequence is soybean diacyllaycerol acyltransferase cDNA from clone srl.pk0098.a8. Diacylglycerol acyltransferases are involved in the synthesis of triacylglycerols. Alteration of the expression of the diacylglycerol acyltransferase DNA can be useful for increasing the level of oils in plant seeds. Inhibitors of diacylglycerol acyltransferase may be useful as
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In the present invention, cDNA libraries from Arabidopsis, corn, rice, soybean and wheat were screened for sequences with homology to a putative acyl COA cholesterol acyltransferase related gene from Arabidopsis thaliana and diacylglycerol acyltransferases from Homo sapiens and Mus musculus. The cDNA clones identified from this process were used to form complete diacylglycerol acyltransferase cDNA sequences. The present sequence is Arabidopsis thaliana diacylglycerol acyltransferase are involved in the synthesis of triacylglycerols acyltransferases are involved in the diacylglycerol acyltransferase are involved of the lavel of oils in plant seeds. Inhibitors of diacylglycerol acyltransferase may be useful for increasing the level of oils in plant seeds. Inhibitors of diacylglycerol acyltransferase may be useful as herbicides.
                                                                                                                                                                                                                                                                                                AsnasnGlyGlyGlyAspasnAsnGlyGlyGlyGlyGlyGlyGlyGluGlyArgGlyAsn
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Matches:
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Lecithin:cholesterol acyltransferase-like; LCAT; sterol acyltransferase; acyl CoAricholesterol acyltransferase-like; ACAT; plant oil; cooking oil; nutritional supplement; dairy product; food product; salad dressing; expressed sequence tag; EST; ss.

Location/Qualifiers 237..1799 /\*tag= a /product= "ACAT"

Key

Arabidopsis thaliana.

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Lassner M, Van Eenennaam

(MONS ) MONSANTO CO

WPI; 2001-169010/17.

P-PSDB; AAU00462

30-AUG-2000; 2000WO-US23863

WO200116308-A2

08-MAR-2001

99US-0152493

30-AUG-1999;

thaliana sterol acyltransferase ACAT EST sequence.

(first entry)

AAS01106;

31-MAY-2001 Arabidopsis

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        LeuMetLeuLeuThrCysIleValTrpLeuLysLeuValSerTyrAlaH1sThrSerTyr
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                          GlnLysTyrIleSerGluProValValIlePheLeuHisIleIleIleThrMetThrGlu
                                            ValLeuTyrProValTyrValThrLeuArgCysAspSerAlaPheLeuSerGlyValThr
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The present sequence encodes for Arabidopsis thaliana acyl CoA:cholesterol acyltransferase-like (ACAT). Several novel acyl CoA:cholesterol acyltransferase-like; ACAT. Several novel CC polynoclectides encoding the plant sterol acyltransferases LCAT (lecithin:cholesterol acyltransferase-like; AASO01081-AASO1304) and ACAT (AASO1311-AASO1319) are described. A yeast LCAT related open compared to produce LCAT or ACAT polypeptides. They can also cor act and accomplanant construct to transform a host cell (preferably cor ACAT are used to produce LCAT or ACAT polypeptides. They can also be used in a recombinant construct to transform a host cell (preferably cor ACAT are used to produce LCAT or ACAT polypeptides. They can also correspond to a plant) or a plant, or a plant of the recombinant construct is used to increase or decrease the sterol content of the host cell or plant. It can be used to alter oil of the plant or the plant itself is used as a food product, or composition of the cell or plant, preferably by increasing it. The oil of the plant or the plant itself is used as a food product, or as nutritional or dietary supplements, or in pharmaceutical compositions for lowering cholesterol. The oil can be used in foods e.g. margarine, cutes, cooking oil, and dressings e.g. salad dressings, margarine, cheese, processed meat, pasta, sauces, cereals, desserts, dips, chips, cheese, processed meat, pasta, sauces, cereals, desserts, dips, chips, cheverages. The alteration in sterol content and or composition can also
New isolated nucleic acid encoding plant lecithin:cholesterol acyltransferase-like or acyl (coenzyme A) CoA:cholesterol acyltransferase-like polypeptides, for modifying the sterol content and
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US-09-623-514A-2 (1-520) x AAS01106 (1-1942)

AAS01106 standard; cDNA; 1942

AAS01106 ID AAS(

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    like protein"
                                                                                                                                                                                                                                                                                                                                                                                            ester; triacylglycerol; fatty acyl-CoA; lipid composition; plant cell; diacylglycerol acyltransferase; DAGAT; triglyceride; cancer; diabetes; cardiopulmonary disease; heart failure; atherosclerosis; adipocytosis; leukaemia; skin carcinoma; fibroblastoma; metabolic disorder; obesity; abnormal lipid metabolism; abnormal fat absorption; lipoprotein secretion; adipogenesis; ss.
                                                                                                                                                 ProAsnLeuTyrValTrpLeuCysMetPheTyrCysPhePheHisLeuTrpLeuAsnIle
                                                  TrpalaPheLeuGlyIleMetPheGlnValProLeuValPheIleThrAsnTyrLeuGln
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                                                                             SerValGlyAspTyrTrpArgMetTrpAsnMetProValHisLysTrpMetValArgHis
                                                                                                              IleTyrPheProCysLeuArgSerLysIleProLysThrLeuAlaIleIleIleAlaPhe
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                                         LeuAlaGluLeuLeuCysPheGlyAspArgGluPheTyrLysAspTrpTrpAsnAlaLys
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237..1799
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98US-0108389
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12-NOV-1998;
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The present sequence encodes an acyl-CoA:cholesterol acyltransferase
(ACAT) related protein. The ACAT-like protein is active in the formation
of a sterol, ester and/or triacylglycerol from a fatty acyl-CoA and
sterol and/or diacylglycerol substrate. The DNA can be used for
has diacylglycerol acyltransferase (DAGAT) activity, and so the
synthesis of triglycerides can be uspected activity, and so the
synthesis of triglycerides can be uspected or increased using the
DNA. The protein can be used to produce plant oils with a modified
triglyceride content. The products can also be used to identify
antagonists and agonists of DAGAT activity. Such agonists and
antagonists are particularly useful in treating or ameliorating
antagonist are particularly useful in treating or ameliorating
with altered cellular diacylglycerol concentration or PKC activity,
including cancer, diabetes, cardiopulmonary diseases e.g. heart failure,
atherosclerosis, adipocytosis, leukaemia, skin carcinoma, fibroblastoma,
metabolism, and diseases associated with abnormal lipid
metabolism, and diseases associated with abnormal inpid
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Novel polynucleotides used for modifying plant oil composition and for developing products for treating e.g. cancer, diabetes, cardiopulmonary disease or metabolic disorders
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                                                                                      Claim 4; Fig 1; 89pp; English
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US-09-623-514A-2 (1-520) x AAA88835 (1-1942)

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Genetically engineering the biosynthetic pathways in plants involved in the accumulation of sterol compounds and tocopherol to produce. compounds for lowering the level of low density lipoprotein cholesterol
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Karunanandaa
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Lassner MW, Rangwala SH,
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                                                                                                                                                                                       Arabidopsis acyl CoA:cholesterol acyltransferase DNA
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                                                                                                                                                                                                         This cDNA encodes Arabidopsis thaliana diacylglycerol acyltransferase (DGAT). The DGAT and an insertion mutant (ASII) are useful for regulating seed oil content, the ratio of diacylglycerol/triacylglycerol proportions in seed oil, fatty acid synthesis, seed oil acyl composition, seed size/weight and carbon flux into other seed components in commercial and crop plants. The natural formation of triacylgrerols can be modified to increase the yield in commercial plant oils or modify their composition to achieve specific commercial improvements of plants and plant products.
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                                    ValValLeuileAlaValAsnSerArgLeuileIleGluAsnLeuMetLysTyrGlyTrp
                                                                                  LeuAlaGluLeuLeuCysPheGlyAspArgGluPheTyrLysAspTrpTrpAsnAlaLys
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                                                                                                             GlnLysTyrIleSerGluProValValIlePheLeuHisIleIleIleThrMetThrGlu
                                                                                                                                                                                      LeuMetLeuLeuThrCyslleValTrpLeuLysLeuValSerTyrAlaHisThrSerTyr
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                                                                                                                                                  ValLeuTyrProValTyrValThrLeuArgCysAspSerAlaPheLeuSerGlyValThr
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AsnAsnGlyGlyGlyAspAsnAsnGlyGlyGlyGlyGlyGlyGlyGlyGlyArgGlyAsn

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us-09-623-514a-2.rng

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GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
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OM protein - nucleic search, using frame_plus_p2n model

Run on: August 31, 2003, 04:59:59; search time 377 Seconds

(without alignments)
3723.363 Million cell updates/sec

Title: US-09-623-514A-2

Perfect score: 2771
Sequence: 1 MAILDSAGVTTVTENGGGEF......QPMCVLLYHDLMNRKGSMS 520

Scoring table: RLOSUM62

Xgapop 10.0, Xgapext 0.5
Ygapop 10.0, Ygapext 0.5
Ygapop 10.0, Ygapext 7.0
Delop 6.0, Pelext 7.0
Searched: 2552756 seqs, 1349719017 residues

Total number of hits satisfying chosen parameters: 5105512

Minimum DB seq length: 00
Maximum DB seq length: 2000000000
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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
Command line parameters:

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N_Geneseq_19Jun01:*

| SIDSI/gcgdata/geneseq/geneseqn-embl/NA1980.DAT:*
| SIDSI/gcgdata/geneseq/geneseqn-embl/NA1981.DAT:*
| SIDSI/gcgdata/geneseq/geneseqn-embl/NA1982.DAT:*
| SIDSI/gcgdata/geneseq/geneseqn-embl/NA1982.DAT:*
| SIDSI/gcgdata/geneseq/geneseqn-embl/NA1985.DAT:*
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| SIDSI/gcgdata/geneseq/geneseqn-embl/NA1980.DAT:*
| SIDSI/gcgdata/geneseq/geneseqn-embl/NA1990.DAT:*
| SIDSI/gcgdata/geneseq/geneseqn-embl/NA2000.DAT:*
| SIDSI/gcgdata/geneseq/geneseqn-emb
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed,

and is derived by analysis of the total score distribution.

Description	A. thaliana diacyl	Arabidopsis acyl C	Acyl-CoA:cholester	Arabidopsis unaila Arabidopsis diacyl	A. thallana AS11 d	A. thallana diacyl A. thallana AS11 d	Soybean diacylglyc	Rice diacylglycero Wheat diacylglycer	Corn diacylglycero	corn diacylglycero Corn diacylglycero	Human ACAT Related	corn diacylglycero Mouse Diacylglycer	Rat acyl CoA:chole	Rat sterol acyltra	Bovine DGAT1 cDNA.	Human acyl CoA:cho	DNA encoding a pro	EST with homology	A. thaliana Diacyl	Drosopnila melanog Human cDNA SEO ID	Human polynucleot1	UNA encoding a num Human acvicoenzyme	Arabidopsis thalla	Drosophila melanog Human GDP-mannose	cDNA encoding nove	Human acylcoenzyme	Human ovarian canc	1-coe	Acylcoenzyme A:cho	7	CDNA encoding nove Mouse acyl CoA:cho						٠	fatty acid synthesis;		
SUMMARIES	:												AAA88846 AAAA385																			ALIGNMENTS		904 BP.			acyltransferase cDNA	ansferase; seed oil; ss.		alifiers
Ē	00.0 1904	.0 1942	00.0 1942	99.4 1888	2 1985	.3 5193	.7 1942	.6 1975	.2 1559	.1 901	7 1976	.9 1650	27.9 1766 21	.9 1766	.6 1732	.6 1895	.6 1895	.5 629	.5 629	.7 993	.7 993	.0 983	.0 470	.6 3996 .9 275	.2 774	9 3649	.7 452	.5 3650	.7 2421	6 2421	.5 1607			standard; cDNA; 19		0 (first entry)	diacylglycerol	lycerol acyltr carbon flux;	haliana.	Location/Qualifiers
Result Ng. Score	27	2 27	27	20	2747	22	18	1596	12	1028	~ "	773	18 773.5	773	764	709	709	652	652	29 573	573	526	, W	4 4	4	413	407	401	378	mr	nm		RESULT 1	1482	AC AAA51482;	DT 09-0CT-2000	XX DE A. thaliana	<pre>XX</pre>	ŭ	FH Key

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GTTGAGTCTATCACTCCAGTGGGTTCCCTGTTTGCTCGGGATCATACTCCATCATCTTC 683	LeulysLeuValSerTyrAlaH1sThrSerTyr'AspIleArgSer 264	TGTCAATCTGTGGTGCCGCCAGCGAAGGGTCAAGGCC 743	AlaAsnProGluValSerTyr 278	AAAGCTGTGTCTGCAGGGAAGAAGGTCAGTGGGGCTGCTGCCCAGAACACGTGTAAGCTAT 803	-TyrvalSerLeuLysSerLeuAlaTyrPheMetValAlaProThrLeuCysTyr 296	CCGGACAACCIGACCTACCGAGAICTCTATTACTTTGCTTTTGCTCTTTGTGTTTT 863	aCyslleArgLysGlyTrpValAlaArgGlnPheAla 316	GAACTCAACTTTCCTCGATCCCCCCGAATACGAAAGCGCTTTCTGCTACGGCGGGTTCTT 923	LysicuValilePheThrGlyPheMetGlyPhelleIleGluGlnTyrileAsnProile 336	GAGATGCTCTTTTTCACCCAGCTTCAAGTGGGGCTGATCCAGCAGTGGATGGTCCTACT 983	uLysGlyAspLeuLeuTyrAlaIleGluArg 354	ATCCAGAACTCCATGAAGCCCTTCAAGGACATGGACTATTCACGAATCATGAGCGT 1040	ValLeuLysLeuSerValProAsnLeuTyrValTrpLeuCysMetPheTyrCysPhePhe 374	CATCTGATATGGCTCATCTTCTATTGGCTTTTC 1100	HisbeuTrpLeuAsnileLeuAlaGluLeuLeuCysPheGlyAspArgGluPheTyrLys 394	AGAGCTCCTGCAGTTTGGAGACCGCGAGTTCTACAGG 1160	IGlyAspTyrTrpArgMetTrpAsnMetProValHis 414	GACTGGTGGAATGCTGACTGTCACCTATTGGCAGAACTGGAATATCCCCGTGCAC 1220	LysTrpMetValArgHislleTyrPheProCysLeuArgSerLysIleProLysThrLeu 434	CAAGCCTATGCTCAGACTGGCAGCAACAATGGATG 1280	AlallellelleAlaPheLeuValSerAlaValPheHisGluLeuCysIleAlaValPro 454	GTCAGCCTTCTTCCATGAGTACCTAGTGAGCATTCCC 1340	CysargLeuPheLysLeuTrpAlaPheLeuGlyIleMetPheGlnValProLeuValPhe 474	ATTCACAGCCATGATGGCTCAGGTCCCACTGGCCTGG 1400	IleThrAsnTyrLeuGlnGluArgPheGlySerThrValGlyAsnMetIlePheTrpPhe 494	TTCCAAGGAACTATGGCAATGCAGCTGTGTGG 1448	IlePheCysllePheGlyGlnProMetCysValLeuLeuTyrTyrHisAsp 511	GGIGGCIGICALGIAIGICCACGAC 1499
:::    GTTGAGTCTATCACTCCAGTGC	LeuLysLeuValSerTyrAlai	CTCAAGCTTTTCTCCTACCGG	LeuAlaAsnAlaAlaAspLys-	AAAGCTGTGTCTGCAGGGAAG	TyrValSerLeuLys	CCGGACAACCTGACCTACCGAC	GlnProSerTyrProArgSer	GAACTCAACTTTCCTCGATCCC	LysLeuValllePheThrGlyF	GAGATGCTCTTTTCACCCAGC	ValArgAsnSerLysHisProl	ATCCAGAACTCCATGAAGCCCT	ValLeuLysLeuSerValPro	CTCTTAAAGCTGGCGGTCCCC	HisLeuTrpLeuAsnIleLeu2	CACTCATGTCTCAATGCTGTGG	AspTrpTrpAsnAlaLysSerV	GACTGGTGGAATGCTGAGTCTG	LysTrpMetValArgHisIleT	AAGTGGTGCATCAGACACTTCT	AlaileileileAlaPheLeuV	GCCAGGACTGGGGTCTTTTGG	CysArgLeuPheLysLeuTrpA	CTGAGGATGTTCCGCCTCTGG	IleThrAsnTyrLeuGlnGluA	ATTGTGAACCGCTTC	IlePheCysIlePheGlyGlnF	GTGACACTCATCATTGGGCAAC
624	250	684	265	744	279	804	297	864	317	924	337	984	355	1041	375	1101	395	1161	415	1221	435	1281	455	1341	475	1401	495	1449
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Search completed: August 31, 2003, 08:27:19 Job time : 403 secs

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211 PheLeuHisIleIleIleThrMetThrGluValLeuTyrProValTyrValThrLeuArg 230
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyLeuPheAsnLeuCysValValValLeuIleAlaValAsnSerArgLeuIleIleGlu 153
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193
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Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                              US-09-623-514A-2 (1-520) x US-10-157-855-15 (1-1766)
       FILE REFERENCE: 16516.158
CURRENT APPLICATION NUMBER: US/10/157,855
CURRENT FILING DATE: 2002-05-31
PRIOR APPLICATION NUMBER: 09/326,203
PRIOR FILING DATE: 1999-06-04
PRIOR PILING DATE: 1999-06-05
PRIOR FILING DATE: 1998-06-05
PRIOR PILING DATE: 1998-16-15
PRIOR PILING DATE: 1998-11-12
NUMBER OF SEQ ID NOS: 46
SEQ ID NO 15
                                                                                                                                                                                                                                                                                                                                                Indels:
Acid Sequences
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53.58%
37.33%
27.91%
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OF INVENTION:
                                                                                                                                                                                                                                                                                                                                Best Local Similarity:
                                                                                                                                                                                                                                                                                                                    Percent Similarity:
                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                              LENGIH: 1766
                                                                                                                                                                                                                          ; ORGANISM: Ra'
US-10-157-855-15
                                                                                                                                                                                                               TYPE: DNA
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                                        GCAGCTGTGGCCTTACTGGTTGAGTCTATCACTCCAGTGGGTTCCGTGTTTGCTCTGGCA 719
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                                                                                                                                    ------SerLeuAlaAsnAlaAsp 270
                                                                                                                                                                                                                                                                                   894 ATCTTTGCTCCTACTTTGTGTTATGAACTCAACTTTCCTCGGTCCCCCGCAATACGAAAG 953
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           ValTyrValThrLeuArgCysAspSerAlaPheLeuSerGlyValThrLeuMetLeuLeu 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 15, Application US/10157855
Publication No. US20020170091A1
GENERAL INFORMATION:
APPLICANT: Lassner, Michael W.
APPLICANT: Ruezinsky, Diane M.
APPLICANT: Ruezinsky, Diane M.
TITLE OF INVENTION: Acyl-CoA:Cholesterol Acyltransferase Related Nucleic
                                                                     Thr---CyslleValTrpLeuLysLeuValSerTyrAlaHisThrSerTyrAsplleArg
                                                                                        780 CAGCGAAGGGTCAAGGCCAAAGCTGTCTACAGGGAAGAAGGTCAGTGGGGGCTGCT---
                                                                                                                                                                                                                                                        MetValAlaProThrLeuCysTyrGlnProSerTyrProArgSerAlaCysIleArgLys
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                                                                                                                                                                                            LysalaasnProGluValSerTyr----TyrValSerLeuLysSerLeuAlaTyrPhe
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1539 ATGTATGTCCACGAC 1553
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US-10-157-855-15
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CURRENT APPLICATION NUMBER: US/10/273,438  CURRENT FILING DATE: 2002-10-16  PRIOR PELING DATE: 2001-10-15  PRIOR FILING DATE: 2001-10-29  PRIOR PELING DATE: 2001-10-39  PRIOR APPLICATION NUMBER: 06/10/7/71  PRIOR APPLICATION NUMBER: 09/103/754  PRIOR PELING DATE: 1998-08-28  PRIOR FILING DATE: 1998-06-24  PRIOR FILING DATE: 1999-06-23  PRIOR FILING DATE: 1999-06-23  NUMBER OF SEQ ID NOS: 10  SOFTWARE: FASTSED for Windows Version 3.0  SOFTWARE: FASTSED for Windows Version 3.0  LENGTH: 1650  TYPE: DNA  CORGANISM: mus musculus  US-10-273-438-9	Alignment Scores:  Alignment Scores:  Pred. No.:  773.50  Matches:  191  Percent Similarity:  51.81%  Conservative:  Best Local Similarity:  14 Gaps:  DB:  US-09-623-514A-2 (1-520) x US-10-273-438-9 (1-1650)  Qy  8 GlyValThrThrValThrGluAsnGlyGlyGluPheValAspLeuArg 27	Qy 28 ArgArgLysSerArgSerAspSerSerAsnGlyLeuLeuLeuSerGlySerAspAsnAsn 47  Db 201 GACGCGCTGTGAGCCCCGACTTGGGCGCCGGGGTGACGCGCG 245  Qy 48 SerProSerAspAspValGlyAlaProAlaAspValArgAspArg1leAspSerValVal 67  :::   :::  Db 246 GCTCCGGCTCGGCTCCAGCCCATACCCGGGACAA	OY 108 ArgProSerValProAlaHisArgArgAlaArgGluSerProLeuSerSerAspAlaIle 127	Oy 168 PheSerSerArgSerLeuArgAspTrpProLeuPheMetCysCysIleSer 184
660 GCAGCTGTGGCTTACTGGTTGAGTCTATCACTCCAGTGGGTTCCGTGTTTGCTCTGGCA  245 ThrCysileValTrpLeuLysLeuValSerTyrAlaHisThrSerTyrAspileArg  ::::	Db 954 CGCTTTCTGCTACGACGAGTTCTTGAGATGCTTTTTTACCCAGCTTCAGTGGGGCTG 1013  329 IleGluGlnTyrIleAsnProlleValArgAsnSerLysHisProLeuLysGlyAspLeu 348	387 PheGlyAspArgGluPheTyrLySAspTrpTrpAsnAlaLySSerValGlyAspTyTTrp 1191 TTGGAGACCGCGAGTTCTACAGAGATTGGTGGAATGCTGACTCTGTCACCTACTTTTGG 407 ArgMetTrpAsnMetProValHistySTrpMetValArgHis1leTyrPheProCysLeu 1151 CAGAACTGGAATATCCCGTGCACAGTGCTACAACACTTCTACAAGCCTATGTGCTC 427 ArgSerLySIleProLySThrLeuAlaIleIleIleAlaPheLeuValSerAlaValPhe 1111 AGACTGGAGCACAAGTGGTGCATCAGACTTCTACAAGCCTATGTTC 427 HisGluLeuCysIleAlaValProCySArgLeuPheLysLeuTrpAlaPheLeuGlyIle 1111 AGACTGGCAGCAGAATGGGTGCCAGGAGTATTTTGACCTCAGCCTTCTTC 1111 AGACTGGCAGCAAATGGGTGGCCAGGAGTATTTTTGACCTCAGCCTTCTTC 1111 AGACTGGCAGCAGAATGGGTGCCAGGAGTATTTTTAAACTTTTTTTT	Oy 467 MetPheGinValProLeuValPheIleThrAsnTyrLeuGlnGluArgPheGlySerThr 486    1	RESULT 14 US-10-273-438-9 Squence 9, Application US/10273438 Squence 9, Application US/10273438 Publication No. US20030072757A1 GENERAL INFORMATION: APPLICANT: Farese, Robert V. APPLICANT: Gases, Sylvaine APPLICANT: Smith, Steven APPLICANT: Erickson, Sandra TITLE OF INVENTION: Diacylglycerol O-Acyltransferase FILE REFERENCE: UCAL-105CIP2

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:::||||||| :::|||||||||||| GCAAGGTTATTTAGAGAACCTTATCAAGTATGGCATCCTGGTG---GATCCTATCCAG 479
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Mismatches:
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Matches:
PRIOR FILING DATE: 2001-10-29
PRIOR APPLICATION NUMBER: 60/107,771
PRIOR FILING DATE: 1998-11-09
PRIOR PILING DATE: 1998-08-28
PRIOR APPLICATION NUMBER: PCT/US98/17883
PRIOR FILING DATE: 1998-06-24
PRIOR APPLICATION NUMBER: 09/103,754
PRIOR PILING DATE: 1998-06-24
PRIOR APPLICATION NUMBER: 09/339,472
PRIOR FILING DATE: 1999-06-23
NUMBER OF SEQ ID NOS: 10
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 3
LENGTH: 1650
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773.50
51.81%
36.38%
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Best Local Similarity:
Query Match:
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                                                                            ---GluValSerTyr-----TyrValSerLeuLysSer
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    APPLICANT: Cases, Sylvaine
APPLICANT: Smith, Steven
APPLICANT: Elickson, Sandra
TITLE OF INVENTION: Diacylglycerol O-Acyltransferase
FILE REFERENCE: UCAL-105C1P2
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Publication No. US20030072757A1
GENERAL INFORMATION:
APPLICANT: Farese, Robert V.
APPLICANT: Cases, Sylvaine
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OTHER INFORMATION: Homo sapiens diacylglycerol O-acyltransferase
OTHER INFORMATION: homolog 1 (DGAT1), coding sequence
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Matches:
PRIOR FILING DATE: 1998-11-09
PRIOR APPLICATION NUMBER: PCT/US98/17883
PRIOR FILING DATE: 1998-08-28
PRIOR PAPLICATION NUMBER: 09/103,754
PRIOR FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 24
SOFWWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 9
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Best Local Similarity:
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   GCCAGCAGTGCTGCTGCCCCGCACACCGTGAGCTACCCGGACAATCTGACCTACCGCGAT
                                                                                                                         LeuAlaTyrPheMetValAlaProThrLeuCysTyrGlnProSerTyrProArgSerAla
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                                                   AlaAsnPro------GluValSerTyr----TyrValSerLeuLysSer
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APPLICANT: Chen, Hubert
APPLICANT: Chen, Hubert
APPLICANT: Chen, Hubert
TITLE OF INVENTION: Methods and compositions for modulating
TITLE OF INVENTION: Sebaceous glands
FILE REFERENCE: UCAL-105CIP4
CURRENT APPLICATION NUMBER: US/10/278,733
CURRENT FILING DATE: 2002-10-21
PRIOR FILING DATE: 2001-10-29
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
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US-10-278-733-9
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                                                                                                                                             LOCATION: (1)...(1467)
OTHER INFORMATION: Homo sapiens diacylglycerol O-acyltransferase
OTHER INFORMATION: homolog 1
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Matches:
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PRIOR FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 24
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 2
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Best Local Similarity:
                                                                                            ORGANISM: Homo
                                                                                                                            NAME/KEY: CDS
LOCATION: (1)
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                                                               LENGTH: 1467
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US-10-278-733-2
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GCTGCATATGGAAATTATGTCGATCCTGAGAATATGAAAAGATCCAACCTTTAAAAGTCTA
                                                                                                                                                                      GlyPheIleIleGluGlnTyrIleAsnProIleValArgAsnSerLysHisProLeuLys
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                                                                                                                            GlyAspLeuLeuTyrAlaIleGluArgValLeuLysLeuSerValProAsnLeuTyrVal
                                                                                                                                                                                                                                                                   312 GGGAANNNNNGAATGCTATAGAAAGAGTCTTAAAACTCTCAGTGCCAACATTATATGTA
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                                               AlaTyrPheMetValAlaProThrLeuCysTyrGlnProSerTyrProArgSerAlaCys
                                                               TrpArgMetTrpAsnMetProValHisLysTrpMetValArgHisIleTyrPheProCys
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Publication No. US20030100480A1

GENERAL INFORMATION:
APPLICANT: Smith, Steven
APPLICANT: Earses, Robert V Jr
APPLICANT: Farses, Robert V Jr
TILE OF INVENTION: Methods and compositions for mod
TITLE OF INVENTION: Methods and compositions for mod
TITLE OF INVENTION: Sebaceous glands
FILE REFRENCE: UCAL-105Clp4
CURRENT APPLICATION NUMBER: US/10/278,733
CURRENT PILING DATE: 2001-10-29
PRIOR APPLICATION NUMBER: 10/040,315
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR PRILING DATE: 1998-11-09
PRIOR APPLICATION NUMBER: 60/10/771
PRIOR APPLICATION NUMBER: 60/10/771
PRIOR APPLICATION NUMBER: 09/339,472
PRIOR APPLICATION NUMBER: 09/339,472
PRIOR APPLICATION NUMBER: 09/339,472
PRIOR PILING DATE: 1998-08-28
PRIOR APPLICATION NUMBER: 09/103,754
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Page 10

961 TTTGTTCAAACTTACCAGCTGTAGATTACTTGGATGAAGTGCTCTATATAAAATTCAATA 447Hisgl	1021 TITCACAAICCAGICCCITICGAGAAAATAIGAIACAITITGITIGCAITIGIACACA	448 uLeuCysIleAlaValProCysArgLeuPheLysLeuTrpAlaPheLeuGlyIleMetPh :	eGlnValProLeuValPheIleThrAsnTyrLeuGlnGluArgPheGlySerThrVa    :::       ::: ::     ::       :: :::     TCAGATTCCCCTCATCATATTGACATCATAATTCAGTGACACAATGGT	G  yAsnMet  ePheTrpPheI ePhe 	Qy 507 uTyrTyrHisAspLeuMetAsnArg 515 	RESULT 10 US-10-223-076-16 ; Sequence 16, Application US/10223076 ; Publication No. US20030074695A1	GENERAL INFORMATION:  APPLICANT: Farese, Robert V  APPLICANT: Cases, Sylvaine  TITLE OF INVENTION: Plant Diacylglycerol O-transferase and	; TITLE OF INVENTION: USES Thereof ; FILE REFERENCE: UCAL-105CIP3 ; CURRENT APPLICATION NUMBER: US/10/223,076 ; CURRENT FILING DATE: 2001-10-29	APPLICATION N FILING DATE: APPLICATION N FILING DATE:	; PRIOR APPLICATION NUMBER: 60/107,771 ; PRIOR FILING DATE: 1998-11-09 ; PRIOR APPLICATION NUMBER: PCT/US98/17883 ; PRIOR FILING DATE: 1998-08-28	; PRIOR APPLICATION NUMBER: 09/103,754 ; PRIOR FILING DATE: 1996-06-24 ; NUMBER OF SEQ ID NOS: 17 ; SOFTWARE: FastSEQ for Windows Version 4.0	; SEQ ID NO 16 ; LENGTH: 1181 ; TYPE: DNA ; ORGANISM: Zea mays	ture , 237, 238, 23 , 396, 397, 39	INFORMATION: n = A,T,C or G 076-16 Scores:	1.37e-109 1.37e-109 1.067.50 79.71% Similarity: 69.57%	Indels: Gaps: .0-223-076-16 (1-1181)	Qy 253 ValSerTyrAlaHisThrSerTyrAspIleArgSerLeuAlaAsnAlaAspLys 271	AlaAsnProGluValSerTyrTyrValSerLeuLysSerLeu
Score: 1279.00 Matches: 232 Percent Similarity: 65.50% Conservative: 49 Best Local Similarity: 54.08% Mismatches: 69 Query Match: 46.16% Indels: 79 DB: 14 Gaps: 3	US-09-623-514A-2 (1-520) x US-10-223-076-17 (1-1572)	pPheSerSerArgSerLeuArgAsp      ::::::  TTTAATGCTACATCATTGCGAGAC	Oy 186 SerIlePheProLeuAlaAlaPheThrValGluLysLeuValLeuGlnLysTyrIleSer 205 	Oy 206 GluProvalValilePheLeuHisileIleThrMetThrGluValLeuTyrProVal 225 :::	Oy 226 TyrValThrLeuArgCysAspSerAlaPheLeuSerGlyValThrLeuMetLeuLeuThr 245	Oy 246 CysileValTrpLeuLysLeuValSerTyrAlaHisThrSerTyrAspIleArgSerLeu 265 	Oy 266 AlaAsnAlaAlaAspLysAlaAsnProGluValSerTyr 278	Oy 279 TyrValSerLeuLysSerLeualaTyrPheMetValalaProThrLeuCysTyrGlnPro 298 :::	Oy 299 SerTyrProArgSerAlaCysIleArgLySGlyTrpValAlaArgGlnPheAlaLysLeu 318 	Oy 319 ValilePheThrGlyPheMetGlyPheIlecleGluGlnTyrIleAsnProIleValArg 338 :::	<pre>Qy 339 AsnSerLysHisProLeuLysGlyAspLeuLyrAlaIleGluArgValLeuLysLeu 358                                      </pre>	Oy 359 SerValProAsnLeuTyrValTrpLeuCysWetPheTyrCysPhePheHisLeuTrpLeu 378      :::       :::	Qy 379 AsnileLeualaGluLeuLeuCysPheGlyAspargGluPheTyrLysAspTrpTrpAsn 398 	Qy 399 AlaLysSerValGlyAspTyrTrpArgMetTrpAsnMetProValHisLysTrpMetVal 418	Oy 419 ArgHisileTyrPheProCysicuArgSerLysileProLysThrLeualaileileile 438 	Oy 439 AlapheLeuValSerAlaVal-Phe	Qy 446 446  Db 901 GCATATATAATTATAAATGTTCTCTATTTCAAATGTGTCCTTTCGAGTTTCGACATGCT 960	Оу 446 446

333 IleAsnProlleValArgAsnSerLysHisProLeuLysGlyAspLeuLeuTyrAlaIle	Db   901 GTTCCTTGCCGTCTTCAATCTATGGGCTTTCATGGGAATTATGTTTCAGGTCCCTTTG 960     473 ValPheileThrAsnTyrLeuGlnGluArgPheGlySerThrValGlyAsnMetIlePhe 492	1021 GSTTCAGGTTCTTGGGACACCGATGTGTGTGTGTGTGTGTGT
APPLICANT: Farese, Robert V  APPLICANT: Cases, Sylvaine TITLE OF INVENTION: Plant Diacylglycerol O-transferase and TITLE OF INVENTION: Plant Diacylglycerol O-transferase and TITLE OF INVENTION: Uses Thereof FILE REFERENCE: UCAL-105CIP3 CURRENT APPLICATION NUMBER: US/10/223, 076 CURRENT FILING DATE: 2001-10-29 PRIOR PILING DATE: 2001-10-29 PRIOR PELICATION NUMBER: 00/339, 472 PRIOR FILING DATE: 1999-06-23 PRIOR FILING DATE: 1999-06-28 PRIOR FILING DATE: 1998-11-09 PRIOR FILING DATE: 1998-11-09 PRIOR FILING DATE: 1998-06-28 PRIOR FILING DATE:	ment Scores: 2.2e-195 Len No.: 1833.00 Mat int Similarity: 95.63% Con Local Similarity: 92.93% Mis Match: 66.15% Ind 14 Gap	US-09-623-514A-2 (1-520) x US-10-223-076-6 (1-1446)  OY 153 GludanLeuwetLySTyrGlyTrpLeuIleArgThrAspPheTrpPheSerSerArgSer 172  Db 2 GAAATCTCATGAAGTAGGTTGATCAGAACTATTCTGGTTTAGTTCAGTCGG 61  OY 173 LeuargAspTrpProleuPheMetCySCysIleSerIeusGarIlePheFroLeulalala 192

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188 eProLeuAlaAlaPheThrValGluLysLeuValLeuGlnLysTyrIleSerGluProVa
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CURRENT APPLICATION NUMBER: US/10/223,076
CURRENT FILING DATE: 2001-10-29
PRIOR APPLICATION NUMBER: 10/040,315
PRIOR FILING DATE: 2001-10-29
PRIOR PELLING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1998-11-09
PRIOR FILING DATE: 1998-11-09
PRIOR FILING DATE: 1998-103-28
PRIOR FILING DATE: 1998-103-28
PRIOR FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 17
SOFTWARRE: FastSEQ for Windows Version 4.0
SEQ ID NO 12
LENGTH: 2099
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; LOCATION: (208)...(1806)
US-10-223-076-12
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Query Match:
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                                                                                                 rLeuArgCysAspSerAlaPheLeuSerGlyValThrLeuMetLeuLeuThrCysIleVa
                                                                                                                                 248 ITrpLeuLysLeuValSerTyrAlaHisThrSerTyrAspIleArgSerLeuAlaAsnAl
                                                                                                                                                                                                                                 268 aAlaAspLys-----AlaAsnProGluValSerTyrTyrValSerLeuLysSerLe
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795 GCCGCTCGCTGTTTCTTGTGGAGAAGTTGGCACAGCAGAGGCATTTGACTGAGCGTGC
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                                      SerGlyValThrLeuMetLeuLeuThrCysIleValTrpLeuLysLeuValSerTyrAla
                                                  HisThrSerTyrAspIleArgSerLeuAlaAsnAlaAlaAspLys-------
                                                                                               310 TrpValAlaArgGlnPheAlaLysLeuValIlePheThrGlyPheMetGlyPheIleIle
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APPLICANT: Cases, Sylvaine
TITLE OF INVENTION: Plant Discylglycerol O-transferase & TITLE OF INVENTION: Plant Discylglycerol O-transferase & FILE REFERENCE: UCAL-105CIP3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 12, Application US/10223076
Publication No. US20030074695A1
GENERAL INFORMATION:
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Matches:
Conservative:
Mismatches:
Indels:
Gaps:
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PRIOR FILING DATE: 1998-08-28
PRIOR APPLICATION NUMBER: 09/103,754
PRIOR FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 17
SOFTWARE: FastSEQ for Windows Version 4.; SEQ ID 0.14
LENGTH: 1964
TYPE: DNA
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74.18%
65.27%
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                                                                                       ORGANISM: Piralla frutescens FEATURE:
                                                                                                                 ; NAME/KEY: CDS
; LOCATION: (69)...(1673)
US-10-223-076-14
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Best Local Similarity:
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Pred. No.:
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publication No. US20033074695A1
GENERAL INCRARATION:
APPLICANT: Farese, Robert V
APPLICANT: Cases, Sylvaine
TITLE OF INVENTION: Uses Thereof
TITLE OF INVENTION: Uses Thereof
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CURRENT APPLICATION NUMBER: US/10/223,076
CURRENT FILING DATE: 2001-10-29
PRIOR PAPLICATION NUMBER: 10/040,315
PRIOR FILING DATE: 2001-10-29
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR APPLICATION NUMBER: 6/107,771
PRIOR PILING DATE: 1998-11-09
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Matches:
Conservative:
Mismatches:
Indels:
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1880.00
78.11%
69.81%
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                        TYPE: DNA
ORGANISM: Tropaeolum majus
FEATURE:
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                                                                NAME/KEY: CDS
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Q ID NO 10
LENGTH: 2090
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                     ValProAsnLeuTyrValTrpLeuCysMetPheTyrCysPhePheHisLeuTrpLeuAsn
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            TyrProArgSerAlaCysIleArgLysGlyTrpValAlaArgGlnPheAlaLysLeuVal
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APPLICANT: Farese, Robert V
APPLICANT: Cases, Sylvaine
TITLE OF INVENTION: Uses Thereof
TITLE OF INVENTION: Uses Thereof
FILE REFERENCE: UCAL-105CIP3
CURRENT APPLICATION NUMBER: US/10/223,076
CURRENT FILING DATE: 2001-10-29
PRIOR FILING DATE: 2001-10-29
PRIOR FILING DATE: 1999-06-23
PRIOR RPLICATION NUMBER: 60/107,771
PRIOR APPLICATION NUMBER: 60/107,771
PRIOR FILING DATE: 1998-08-28
PRIOR FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 17
SOFTWARE: FastSEQ for Windows Version 4.0
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Matches:
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Mismatches:
Indels:
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83.35%
; NAME/KEY: CDS
; LOCATION: (1)...(1512)
US-10-223-076-8
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Fublication No. US20030074695A1
GENERAL INFORMATION:
APPLICANT: Farese, Robert V
APPLICANT: Cases, Sylvaine
TITLE OF INVENTION: Plant Diacylglycerol O-t
TITLE OF INVENTION: Uses Thereof
FILE REFERENCE: UCAL-105cIP3
CURRENT APPLICATION NUMBER: US/10/223,076
CURRENT PLING DATE: 2001-10-29
PRIOR PLING DATE: 2001-10-29
PRIOR PLING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR PLING DATE: 1998-11-09
PRIOR PLING DATE: 1998-11-09
PRIOR PLING DATE: 1998-11-09
PRIOR PLING DATE: 1998-09-28
PRIOR PLING DATE: 1998-09-28
PRIOR PLING DATE: 1998-09-28
PRIOR PLING DATE: 1998-08-28
PRIOR PLING DATE: 1998-06-24
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Matches:
Conservative:
Mismatches:
Indels:
Gaps:
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                                            1.5e-253
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85.96%
84.86%
; LOCATION: (2)...(1107)
US-10-223-076-4
                                                                   Percent Similarity:
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Sequence 4, Application US/10223076
Sequence 4, Application US/2030074695A1
Settle INFORMATION:
TEREFILING NO. US20030074695A1
SEPECANT: Cases, Sylvaine
TITLE OF INVENTION: Plant Diacylglycerol O-transferase and TITLE OF INVENTION: Plant Diacylglycerol O-transferase and TITLE OF INVENTION: Plant Diacylglycerol O-transferase and TITLE OF INVENTION: USES Thereof
FILE REFERENCE: UCAL-105CIP3
CURRENT FILING DATE: 2001-10-29
PRIOR APPLICATION NUMBER: 10/040,315
PRIOR PILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1998-11-09
PRIOR FILING DATE: 1998-11-09
PRIOR FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 17
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 4
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US-10-223-076-4
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Matches:
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Best Local Similarity:
                  Alignment Scores:
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APPLICANT: Ruezinsky, Diane M.; TITLE OF INVENTION: Acid Sequences
TITLE OF INVENTION: Acid Sequences
TITLE OF INVENTION: Acid Sequences
FILE REFERENCE: 16516.158
CURRENT APPLICATION NUMBER: US/10/157,855
CURRENT PILING DATE: 2002-05-31
PRIOR APPLICATION NUMBER: 09/326,203
PRIOR FILING DATE: 1999-06-04
PRIOR FILING DATE: 1999-06-05
PRIOR FILING DATE: 1999-06-05
PRIOR FILING DATE: 1999-11-12
NUMBER OF SEQ ID NOS: 46
SOFTWARE: Patentin Ver. 2.1
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                                                               PheThrGlyPheMetGlyPheIleIleGluGlnTyrIleAsnProIleValArgAsnSer
                                                                                                                                                                                                                                                           LeuValSerAlaValPheHisGluLeuCysIleAlaValProCysArgLeuPheLysLeu
                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1, Application US/10157855
Publication No. US20020170091A1
GENERAL INFORMATION
APPLICANT: LASSNEY, Michael W.
APPLICANT: Ruezinsky, Diane M.
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US-10-157-855-1
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Matches:
Conservative:
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Indels:
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                                                                                                      Gaps:
     ORGANISM: Arabidopsis thallana
FEATURE:
NAME/KEY: CDS
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DB:
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GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd:

- nucleic search, using frame\_plus\_p2n model OM protein

August 31, 2003, 05:57:06; Search time 371 Seconds (Without alignments) 3215.662 Million cell updates/sec Run on:

US-09-623-514A-2

1 MAILDSAGVTTVTENGGGEF.....QPMCVLLYXHDLMNRKGSMS 520 Title: Perfect score: Sequence:

Scoring table:

BLOSUM62 Xgapop 10.0, Xgapext Ygapop 10.0, Ygapext Fgapop 6.0, Fgapext Delop 6.0, Delext

1533700 segs, 1147125425 residues Searched:

Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Command line parameters:

OVORLE-frame+\_p2n.model - DEV-XIP
-Q-/cgn2\_1/USFPC\_appool/US09623514/runat\_29082003\_152202\_190/app\_query.fasta\_1.711
-DB-Published\_Applications\_NA -QFMT-fastap -SUFFIX=rnpb -MINNATCH-0.1
-LOOPCL-0 -LOOPEXT-0 -UNITS=bits -START=1 -END=-1 -MATRIX=blosum62
-TRANS-human40.cdi -LIST-45 -DOCALIGN=200 -THE\_SCORE-pct -THE\_MAX=100
-THE\_MIN-0 -ALIGN=15 -MODE-LCCAL -OUTFMT-pto -NORM-ext -HEAPSIZE-500 -MINLEN-0
-MAXLEN-200000000 -USER-US09623514\_@CGN\_1\_1\_333\_@runat\_29082003\_152202\_190
-TNCPU-6 -TICPU-3 -NO\_MANA -LAKEGOURRY -NEG\_SCORESD-0 -WAIT - DSPBLOCK=100
-LONGLOG -DEV\_INEGOUT=120 -WARN\_TIMEOUT=30 -THERADS-1 -XGAPDEXT=0.5
-FGAPOP-6 -FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP-6 -DELEXT=7

Database :

Published\_Applications\_NA:\*

1: /cgn2\_6/ptodata/2/pubpna/USO7\_PUBCOMB.seq:\*
2: /cgn2\_6/ptodata/2/pubpna/DSC7\_NEW\_PUB.seq:\*
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12: /cgn2\_6/ptodata/2/pubpna/USO9\_NEW\_PUB.seq:\*
13: /cgn2\_6/ptodata/2/pubpna/USO9\_NEW\_PUB.seq:\*
14: /cgn2\_6/ptodata/2/pubpna/USO9\_NEW\_PUB.seq:\*
14: /cgn2\_6/ptodata/2/pubpna/USO9\_NEW\_PUB.seq:\*
16: /cgn2\_6/ptodata/2/pubpna/USO0\_NEW\_PUB.seq:\*
16: /cgn2\_6/ptodata/2/pubpna/USO0\_NEW\_PUB.seq:\*
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17: /cgn2\_6/ptodata/2/pubpna/USO0\_NEW\_PUB.seq:\*
17: /cgn2\_6/ptodata/2/pubpna/USO0\_NEW\_PUB.seq:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Sequence 2, Appli Description 1904 14 US-10-223-076-2 Query Score Match Length DB 100.0 2771 Result No.

Sequence 9, Apples Sequence 15, Apples Sequence 11, Apples Sequence 11, Apples Sequence 11, Apples Sequence 12, Apples Sequence 14, Apples Sequence 11, Apples Sequence 17, Apples Sequence 17, Apples Sequence 19, Apples Sequence 29, Apples Sequence 20, Apples Sequence 20, Apples Sequence 20, Apples Sequence 20, Apples Sequence 10, Apples Sequence 20, Apples Apples 20, Apples 2 Sequence 3 Sequence 5 Sequence 9 Sequence 9 Sequence Sequence Sequence Sequence US-09-878-574-15694 US-09-764-868-279 US-10-303-664A-10 US-10-303-664A-10 US-09-867-701-4664 US-09-918-026A-10 US-09-918-026A-10 US-10-157-855-5 US-10-157-855-5 US-10-157-855-1 US-10-223-076-4 US-10-223-076-10 US-10-223-076-114 US-10-223-076-12 US-10-223-076-12 US-10-223-076-12 US-10-223-076-16 US-10-223-076-16 US-10-223-076-16 US-10-273-438-3 US-10-273-438-3 US-10-273-438-3 US-10-273-438-3 US-10-278-733-12 US-10-278-733-12 US-10-278-733-14 US-10-278-733-4 US-10-278-733-6 US-10-278-733-6 US-10-278-733-6 US-10-278-733-6 US-10-278-733-6 US-10-278-733-7 US-10-278-733-4 US-09-764-853-79 US-09-774-639-29 12512 120904 120904 120904 120904 120904 120904 120904 130908 130908 130908 130908 130908 130908 130908 130908 773.5 773.5 771.5 771.5 762.5 753.5 751.5 724.5 720.5 698 696.5 652.5 652.5 573.5 5335

USC) 22 (25) ALIGNMENTS 10-223-076-2

Sequence 2. Application US/10223076

Sequence 2. Application US/10223076

Fublication No. US20030074695A1

GENERAL INFORMATION:
APPLICANT: Farese, Fubert V

APPLICANT: Cases, Sylvaine
TITLE OF INVENTION: Uses Thereof
FILE REFERENCE: UGAL-105GTP3

CURRENT FILING DATE: 2001-10-29

PRIOR FILING DATE: 2001-10-29

PRIOR FILING DATE: 1999-06-23

PRIOR FILING DATE: 1999-06-23

PRIOR FILING DATE: 1999-06-23

PRIOR FILING DATE: 1998-06-24

SEC ID NOS: 17\*

SEC ID NO 2

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391 KPMLRRGSSKWMARTGVFLASAFFHEYLVSVPLRMFRLWAFTGMMAQIPLAWFVGRFFQG 450
123 FPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLV-FITNYLQE 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genetically engineering the biosynthetic pathways in plants involved in
the accumulation of sterol compounds and tocopherol to produce
compounds for lowering the level of low density lipoprotein cholesterol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present sequence is that of rat acyl CoA:cholesterol

acyltransferase (ACAT), as deduced from ACAT DNA (see AAA88846).

Sterol O-acyltransferases such as ACAT catalyse the formation of cholesterol esters from cholesterol and long chain fatty acids.

Recombinant constructs of the invention are used to alter the biosynthesis and accumulation of sterols and tocopherols in transgenic plants. Seeds of such plants may contain elevated reduced levels of campesterol and campestanol and their esters.

The seeds may also contain the novel sterol brassicastanol. Oil contained from the seeds can be used in food and pharmaceutical compositions to lower levels of low density lipoprotein cholesterol in blood serum. ACAT enzymes can be used in the present invention to produce elevated levels of phytosterol and/or phytostanol esters.
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Karunanandaa B;
                                                                                                                                                                                                                                                                                                                                         tocopherol; phytosterol; phytostanol; anticholesterolemic;
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                                                                                                                                                                                                                                                                                                                        Acyl CoA:cholesterol acyltransferase; ACAT; transgenic plant;
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7, Rangwala SH,
                                                                                       RFGSTVGNMIFWFIFCIFGQPMCVLLYYHD 511
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Lassner MW,
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Kishore GM, Lardizabal KD,
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N-PSDB; AAA88846.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            306 IRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYAIERVLKLSVPNLYV 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WICMFYCFFHLWINILAELLCFGDREFYRDWWNAKSVGDYWRMWNMPVHKWMVRHIYFPC 425
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 VSYAHTNYDIRVLSKSTEKGAAYGNYVDPENMKDPTFKSLVYFMLAPTLCYOPTYPQTTC 70
                                                                                                                                                                                                                                                                                            Polynucleotides encoding diacylglycerol acetyltransferase, useful for synthesis of triacylglycerols and increasing the level of oils in plant
                                                                                                                                                                                                                                                                                                                                                                                                                                             In the present invention, cDNA libraries from Arabidopsis, corn, rice, soybean and wheat were screened for sequences with homology to a putative acyl COA cholesterol acyltransferase related gene from Arabidopsis thaliana and diacylglycerol acyltransferases from Homo sapiens and Mus musculus. The CDNA clones identified from this process were used to form complete diacylglycerol acyltransferase cDNA sequences. The present sequence is corn diacylglycerol acyltransferase protein, derived from a contig of clones p0042.cspaf49r, p0122.ckamb57r and p0125.czaau61rb. Diacylglycerol acyltransferases are involved in the synthesis of triacylglycerols. Alteration of the expression of the diacylglycerol acyltransferase bNA can be useful for increasing the level of oils in plant seeds. Contact of diacylglycerol acyltransferase may be useful as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
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                                                                                                         (DUPO ) DU PONT DE NEMOURS & CO E I.
                                                                                                                                                                                                                                                                                                                                                                                                Claim 12; Page 47-48; 62pp; English.
                                                                                                                                                              Cahoon RE;
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68.3%;
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Best Local Similarity 68.3
Matches 185; Conservative
                                                                                                                                                              Kinney AJ,
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                           02-DEC-1998;
31-MAR-1999;
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The enzyme acyl Coenzyme A-cholesterol acyltransferase 1 (ACATI) mediates sterol esterification, an important component of intracellular lipid homeostasis. The present sequence is human ACAT Related Gene Product 1 (ARGPI). This enzyme is a diacylglycerol acyltransferase (DGAT). This enzyme does not esterify cholesterol. It is thought therefore that ARGPI participates in the Coenzyme A-dependent acylation of substrate(s) other than cholesterol e.g. diacylglycerol. Also, ARGPI has a predicted acylation in triglyceride blosynthesis. ARGPI has a predicted acylation in triglyceride blosynthesis. ARGPI gene and protein are useful for treating a subject who has an imbalance in triglyceride levels due to a defect in esterification of diglycerol, via gene therapy. Particularly, ARGPI is useful for treating hypertriglyceridaemia, hyperlipidaemia, atherosclerosis, heart disease, obesity or other diseases associated with high or excessive levels of triglyceride.
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hyperlipidaemia; atherosclerosis; heart disease; obesity.
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38.0%;
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99WO-US28354.
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                                                                                   327 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Polynucleotides encoding diacylglycerol acetyltransferase, useful for
synthesis of triacylglycerols and increasing the level of oils in plant
                                                                                                                                                                                                                                    515
                                                                                                                                                                                                                                            300 FWAFLGIMLOIPLILITSYLKNKFSDTWVGNMIFWFFFCIYGQPMCVLLYYHDVMNR 356
                                                                                                   In the present invention, cDNA libraries from Arabidopsis, corn, rice, soybean and wheat were screened for sequences with homology to a putative acyl CoA cholesterol acyltransferase related gene from Arabidopsis thaliana and diacylglycerol acyltransferases from Homo
                                                         168 FSSRSLRDWPLFMCCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYV
                                                                   228 TLRCDSAFLSGVTLMLLTCIVWLKLVSYAHTSYDIRSLANAADKANPEVS-----YYV
                                                                                                                             SLKSLAYFWVAPTLCYQPS-YPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRN
                                                                                                                                                               SKHPLKGDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNA
                                         Gaps
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                                         10;
                        Length 361;
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triacylglycerol; herbicide; EC2.3.1.20.
                                        Indels
                        DB 21;
                                        80;
                       Score 1211; DB 21;
Pred. No. 2.8e-114;
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                                        49; Mismatches
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                       43.7%;
61.1%;
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                                        Matches 218; Conservative
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N-PSDB; AAA48935.
                               Similarity
      361 AA;
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31-MAR-1999;
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sapiens and Mus musculus. The cDNA clones identified from this process were used to form complete diacylglycerol acyltransferase CDNA sequences. The present sequence is corn diacylglycerol acyltransferase protein derived from clone cpilc.pk005.h23. Diacylglycerol acyltransferases are involved in the synthesis of triacylglycerols. Alleration of the expression of the diacylglycerol acyltransferase DNA can be useful for increasing the level of oils in plant seeds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NSKHPLKGDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWN
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                                                                                                                                                                                                                                                                                                                33;
                                                                                                                                                                                                                                                                     DB 21; Length 327;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Diacylglycerol acyltransferase; corn; rice; soybean; wheat; triacylglycerol; herbicide; EC2.3.1.20.
                                                                                                                                                                                                                                                                 tch 37.8%; Score 1046.5; DB 21; Lengt al Similarity 56.0%; Pred. No. 1.3e-97; 191; Conservative 45; Mismatches 72; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     459 KLWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFWFIFCIF 499
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269
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Misc-difference 193
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36 ILAELLRFGDREFYKDWWNAKTVEEYWRWWNMPVHKWIVRHIYFPCIRNGLSKGCAILIA 425
Corn diacylglycerol acyltransferase protein
                                                                                                                                                                                                                                                                                                                                                                                                          'note- "encoded by ATAA"
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Misc-difference 290..295
/note= "encoded كالم
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Misc-difference 95
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                                                                                                FGQPMCVLLYYHDLMNRK 516
                                                                                                               VGQPMCVLLYYHDVMNRQ 503
                                                                                                                                                                                               AAY94513 standard; Protein; 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98US-0110602.
99US-0127111.
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                                                                                                                                                                                                                                                                                                                                                                                                                         Misc-difference 119
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31-MAR-1999;
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                                                                                                                                                                     RESULT 11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              306 VFTGLMGFIIEQYINPIVQNSKHPLNGNFLDAIERVLKLSVPTLYVWLCMFYSFPHLWLN 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAADKA-----NPEVSYYVSLKSLAYFWVAPTLCYQPSYPRSACIRKGWVARQFAKLV 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               320 IFTGFMGFIIEQYINPIVRNSKHPLKGDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLN 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      380 ILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVRHIYFPCLRSKIPKTLAIIIA 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NSRLIIENLMKYGWLIRTDFWFSSRSLRDWPLFMCCISLSIFPLAAFTVEKLVLQKYISE 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                207 PVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLTCIVWLKLVSYAHTSYDIRSLA 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                               soybean and wheat were screened for sequences with homology to a putative acyl COA cholesterol acyltransferase related gene from Arabidopsis thaliana and diacylglycerol acyltransferases from Homo sapiens and Mus musculus. The cDNA clones identified from this process were used to form complete diacylglycerol acyltransferase cDNA sequences. The present sequence is wheat diacylglycerol scyltransferase protein, derived from clone wil.pk0119.b6:iis. Diacylglycerol acyltransferases are involved in the synthesis of triacylglycerols. Alteration of the expression of the lateylglycerol acyltransferase DNA can be useful for increasing the level of oils in plant seeds. Inhibitors of diacylglycerol acyltransferase may be useful
                                                                                                                                                                                                                                                                                                                                                                   Polynucleotides encoding diacylglycerol acetyltransferase, useful for
synthesis of triacylglycerols and increasing the level of oils in plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 246 QSIEKGATHGSSIDEENIKGPTINSVVYFWLAPTLCYQPSYPRTAFIRKGWVTRQLIKCV
                                                                                                                                                                                                                                                                                                                                                                                                                                                      present invention, cDNA libraries from Arabidopsis, corn, rice,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 508;
                                                                      Diacylglycerol acyltransferase; corn; rice; soybean; wheat; trlacylglycerol; herbicide; EC2.3.1.20.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1596; DB 21;
Pred. No. 3.2e-153;
                                           Wheat diacylglycerol acyltransferase protein #2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44; Mismatches
                                                                                                                                                                                                                                                                  (DUPO ) DU PONT DE NEMOURS & CO E I.
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68.7%;
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                06-DEC-2000 (first entry)
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Best Local Similarity 68.7
Matches 301; Conservative
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                                                                                                                                                                                                                                                                                                                         WPI; 2000-412308/35.
N-PSDB; AAA48942.
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                                                                                                                Triticum aestivum
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31-MAR-1999;
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Polynucleotides encoding diacylglycerol acetyltransferase, useful for synthesis of triacylglycerols and increasing the level of oils in plant
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FLYSAVFHELCIAVPCRLFKLWAFLGIMFQVPLVFITNYLQERFGST-VGNMIFWF1FC1
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99US-0127111
                                                      N-PSDB; AAA48938
                                                                                                                                                                                                             herbicides.
 31-MAR-1999;
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Matches
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                                                                                                        213 SGVTLMLFSCVVWLKLVSYAHTNYDMRALTKLVEKGEALLDTLNMDYPYNVSFKSLAYFL 272
                                                                                                                                                                                                    VAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLL 349
                                                                                                                                                                                                            409
                                                                                                                                                                                                                                           469
                                                                                                                                                                                                                                                                         60 RDRIDSVVNDDAQGTANLAGDNNGGGDNNGGGRGGGGGGRGNADAT---FTYRPSVPAHRR 116
                                                                                                                                        PLFMCCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFL 236
                                                                                                                                                                      SGVTLMLLTCIVWLKLVSYAHTSYDIRSLANAADKA-----NPEVSYYVSLKSLAYFM 289
                                              53
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                                             1 MAILDS-AGVTTVTENGGGEFVDLDRLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADV
                                                      NMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQ
                                                                                                                                                                                                                                  YAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMW
                              Gaps
                                                                                                                                                                                                                                                                                              VPLVFITNYLQERF-GSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSM 519
                                                                                                                                                                                                                                                                                                     40;
               504;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "The nucleotides encoding this region not given in AAA48938" 70..500 /note= "Encoded hv ....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note- "Encoded by nucleotides 15 to 1310 of cDNA in AAA48938"
                                                                                                                                                                                                                                                                                                                                                                                                               Diacylglycerol acyltransferase; corn; rice; soybean; wheat; trlacylglycerol; herbicide; EC2.3.1.20.
               Length
                              Indels
              Score 1821; DB 21;
Pred. No. 4.2e-176;
                                                                                                                                                                                                                                                                                                                                                                                                Rice diacylglycerol acyltransferase protein #2.
                             47; Mismatches
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               65.7%;
66.5%;
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                             353; Conservative
                      Similarity
504 AA;
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Sequence
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               Query Match
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Region
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      311
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                                                                                                                                                                                                                                                                                                                                                            In the present invention, cDNA libraries from Arabidopsis, corn, rice, soybean and wheat were screened for sequences with homology to a putative acyl COA cholesterol acyltransferase related gene from Arabidopsis thaliana and diacylglycerol acyltransferase from Homo sapiens and Mus musculus. The cDNA clones identified from this process were used to form complete diacylglycerol acyltransferase cDNA sequences. The present sequence is rice diacylglycerol acyltransferase cDNA acyltransferase protein, derived from clone ris24.pk0034.d8:fis. Diacylglycerol acyltransferases are involved in the synthesis of triacylglycerols. Alteration of the expression of the idacylglycerol acyltransferase DNA can be useful for increasing the level of oils in plant seeds. Inhibitors of diacylglycerol acyltransferase may be useful
                                                                                                                                                                                            Polynucleotides encoding diacylglycerol acetyltransferase, useful for
synthesis of triacylglycerols and increasing the level of oils in plant
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SYDIRSLANAADKANPEVSYY - - - - - VSLKSLAYFMVAPTLCYQPSYPRSACIRKGWV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          515
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                                                          Cahoon RE;
(DUPO ) DU PONT DE NEMOURS & CO
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                                                                                                                                                                                                                                                                                                              Claim 12; Fig 1; 62pp; English
                                                       Cahoon EB, Kinney AJ,
                                                                                                              WPI; 2000-412308/35
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This is the Arabidopsis thaliana ecotype Columbia ASII insertion mutant diacylglycerol acyltransferase (DGAT). The ASII mutant TAGI allele has a 147 bp insertion located at the central region of intron 2. The insertion is a duplication of a segment that is composed of 12 bp from the 3' end of intron 1, the entire sequence of exon 2 (81 bp) and 54 bp from the 5' end of intron 2. The DGAT and the insertion mutant (ASII) are useful for regulating seed oil content, the ratio of diacylglycerol to triacylglycerol proportions in seed oil, fatty acid synthesis, seed oil triacylglycerol proportions in seed oil, fatty acid synthesis, seed oil acyl components in commercial and crop plants. The natural formation of triacylglycerols can be modified to increase the yield in commercial plant oils or modify their composition to achieve specific commercial improvements of plants and plant products.
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                                                                                                                                                                                                                                                                                                                                                                                      New DNA encoding diacylglycerol acyltransferase from Arabidopsis thallana for transforming plants and regulating seed oil content, fatty acid synthesis and seed oil acyl composition in commercial and crop plants
                                                                                    Location/Qualifiers
158..184
/label= insertion
/note= "present due to a 147 bp insertion duplication
in the genomic DNA, see AAA51485"
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               DGAT; diacylglycerol acyltransferase; seed oil; fatty acid synthesis; size; weight; carbon flux; TAG1; insertion mutant.
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Pred. No. 2.8e-270;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                             Wei Y, Jako CC;
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                                                                                                                                                                                                                                                                                                (CANA ) NAT RES COUNCIL CANADA.
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95.1%;
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Matches 520; Conservative
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                                                         Arabidopsis thaliana
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Misc-difference
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                                                                                                                                                                                In the present invention, cDNA libraries from Arabidopsis, corn, rice, soybean and wheat were screened for sequences with homology to a putative actyl CoA cholesterol acyltransferase related gene from Arabidopsis thaliana and diacylglycerol acyltransferases from Homo sapiens and Mus musculus. The cDNA clones identified from this process were used to form complete diacylglycerol acyltransferase cDNA sequences. The present sequence is soybean diacylglycerol acyltransferase protein, derived from clone srl.pk0098.a8 Diacylglycerol acyltransferases are involved in the synthesis of triacylglycerols. Alteration of the expression of the diacylglycerol acyltransferase DNA can be useful for increasing the level of oils in plant seeds. Inhibitors of diacylglycerol acyltransferase may be useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Polynucleotides encoding diacylglycerol acetyltransferase, useful for synthesis of triacylglycerols and increasing the level of oils in plant seeds
                                                                     NPIVRNSKHPLKGDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFY
                                                                                                           KDWWNAKSVGDYWRWWNMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAV
                                                                                                                                                                PCRLFKLWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLM
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N-PSDB; AAA48939.
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                            Gaps
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              520;
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              Length
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             DB 22;
                    Pred. No. 1.1e-272;
Mismatches 0;
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                   1 Similarity 100. 520; Conservative
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N-PSDB; AAA48932.
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Polynucleotides encoding diacylglycerol acetyltransferase, useful for
synthesis of triacylglycerols and increasing the level of oils in plant
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MAILDSAGVTTVTENGGGEFVDLDRLRRRRSRSDSSNGLLLSGSDNNSPSDDVGAPADVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 LMLLTCIVWLKLVSYAHTSYDIRSLANAADKANPEVSYYVSLKSLAYFWVAPTLCYQPSY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLVFITNYLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    520;
                                                                                                                                          present invention, cDNA libraries from Arabidopsis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 2753; DB 21;
Pred. No. 7.2e-271;
); Mismatches 2;
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                                                                                          Claim 14; Fig 1; 62pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99.48;
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Matches 518; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    520 AA;
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The present sequence represents an acyl-CoA:cholesterol acyltransferase (ACAT) related protein. The ACAT-like protein is active in the formation of a sterol, ester and/or trlacylglycerol from a fatty acyl-CoA and sterol, ester and/or trlacylglycerol substrate. The DNA can be used for modifying the lipid composition of plant cells. The ACAT-like protein synthesis of triglycerides can be suppressed or increased using the DNA. The protein can be used to produce plant oils with a modified triglyceride content. The products can also be used to identify antagonists and agonists of DAGAT activity. Such agonists and antagonists are particularly useful in treating or ameliorating diseases associated with DAGAT activity, including diseases associated with altered cellular diacylglycerol concentration or PKC activity, including cancer, diabetes, cardiopulmonary diseases e.g. heart failure, atheroscierosis, adipocytosis, leukaemia, skin carcinoma, fibrobiastoma, metabolism, and diseases associated with abnormal inpid metabolism, and diseases associated with abnormal fat absorption, lipoprotein secretion and adipogenesis.
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                                                                                                                                                                                                                                                                                                  Novel polynucleotides used for modifying plant oil composition and for developing products for treating e.g. cancer, diabetes, cardiopulmonary disease or metabolic disorders
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                                                                                                                                                                                                                                                                                                                                                               Example 2; Page 65-67; 89pp; English.
                                                                                                                                      98US-0088143.
98US-0108389.
                                                                                                           99WO-US12541
                                                                                                                                                                                                                       Ruezinsky DM;
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                Arabidopsis thaliana.
                                                                                                                                                                                      (CALJ ) CALGENE LLC.
                                                                                                                                                                                                                                                  WPI; 2000-105701/09.
N-PSDB; AAZ45371.
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                                            WO9963096-A2.
                                                                                                                                       05-JUN-1998;
12-NOV-1998;
                                                                                                          04-JUN-1999;
                                                                                                                                                                                                                     Lassner MW,
                                                                            09-DEC-1999
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The present sequence represents Arabidopsis thaliana

acyl CoA.cholesterol acyltransferase-like (ACAT). Several novel

acyl CoA.cholesterol acyltransferase-like; AASO1081-AASO1104, AASO1341)

(lecithin:Cholesterol acyltransferase-like; AASO01081-AASO1104, AASO1341)

and ACAT (AASO1311-AASO1319) are described. A yeast LCAT related open

cand ACAT are used to produce LCAT or ACAT polypeptides. They can also

cor ACAT are used to produce LCAT or ACAT polypeptides. They can also

cor ACAT are used to produce LCAT or ACAT polypeptides. They can also

cor ACAT are used to produce LCAT or ACAT polypeptides. They can also

cor a plant) or a plant. The recombinant construct is used to increase or

cdecrease the sterol content of the host cell or plant. It can be used to

decrease the sterol content of the host cell or plant. It can be used to

cdecrease the sterol content of the plant tiself is used as a food product, or

calter oil production of the cell or plant, preferably by increasing it.

The oil of the plant or the plant itself is used as a food product, or

as nutritional or dietary supplements, or in pharmaceutical compositions

con lowering, cholesterol. The oil can be used in foods e.g. margarine,

cooking oil, and dressings e.g. salad dressings, mayonnaise,

cheese, processed meat, pasta, sauces, cereals, desserts, dips, chips,

cheese, processed meat, pasta, sauces, cereals, desserts, dips, chips,

cheese, processed meat, pasta, sauces, cereals, desserts, dips, chips,

cheese, processed meat, pasta, sauces, cereals, desserts, and

content and dressings e.g. cereals and cereals 
                                                                                                       480
                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lecithin:cholesterol acyltransferase-like; LCAT; sterol acyltransferase; acyl CoA:cholesterol acyltransferase-like; ACAT; plant oil; cooking oil; nutritional supplement; dairy product; food product; salad dressing.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New isolated nucleic acid encoding plant lecithin.cholesterol acyltransferase-like or acyl (coenzyme A) CoA.cholesterol acyltransferase-like polypeptides, for modifying the sterol content and oil production of plants
                                                                                                 PNLYVWICMFYCFFHLWLNILAELICFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   provide a plant with tolerance to stress and insect damage
                                                                                                                                                                                                                                          ERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis thaliana sterol acyltransferase ACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example 3; Page 103-104; 127pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                 AAU00462 standard; Protein; 520 AA
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lipoprotein secretion; adipogenesis.
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                                                                                                                     100.0%;
100.0%;
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                                                                                                                  Query Match
Best Local Similarity 100.
Matches 520; Conservative
                                                                                                       520 AA;
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                                                                                                                                                                                                                                                               conscibus motit identified as targeting motif typical of members of the SnRK1 protein kinase family"
                                    IYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLVFITNYLQ
      PILYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVRH
                                                                                                                                                                                          diacylglycerol acyltransferase; seed oil; fatty acid synthesis; weight; carbon flux; TAG1.
                                                                                                                                                                                                                                                                                                                                                                                      /note- "putative diacylglycerol/phorbol ester-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New DNA encoding diacylglycerol acyltransferase from Arabidopsis thaliana for transforming plants and regulating seed oil content, facid synthesis and seed oil acyl composition in commercial and crop
                                                                                                                                                                                                                                                                                                                                                ţ
                                                                                                                                                                                                                                                                                                                                               /note- "invariant proline may participate acyl-CoA binding"
                                                                                                                                                                                                                             Location/Qualifiers
178..195
//note= "possible transmembrane segment"
199..209
                                                                                                                                                                                                                                                                                                                                                       363..388
/note= "possible transmembrane segment"
414..424
                                                                                                                                                                                                                                                                                                                "possible transmembrane segment"
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                                                                     ERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSMS 520
                                                                              /note= "highly hydrophobic block IV"
224
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/note= "phosphorylation site"

    A. thaliana diacylglycerol acyltransferase.

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                                                                                                                            AAY96853 standard; Protein; 520
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N-PSDB; AAA51482, AAA51483.
                                                                                                                                                           (first entry)
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221..229
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486..507
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                                                                                                                                                                                                                  Arabidopsis thaliana
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                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200036114-A1
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                                                                                              This is an Arabidopsis thaliana diacylglycerol acyltransferase (DGAT). The DGAT and an insertion mutant (AS11) are useful for regulating seed oil content, the ratio of diacylglycerol/triacylglycerol proportions in seed oil, fatty acid synthesis, seed oil acyl composition, seed size/weight and carbon flux into other seed components in commercial and croep plants. The natural formation of triacylgycerols can be modified to increase the yield in commercial plant oils or modify their composition to achieve specific commercial improvements of plants and plant products.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MAILDSAGVTTVTENGGGEFVDLDRLRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 2771; DB 21;
Pred. No. 1.1e-272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSMS
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Disclosure; Page 65-66; 91pp; English.
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Genetically engineering the biosynthetic pathways in plants involved in the accumulation of sterol compounds and tocopherol to produce compounds for lowering the level of low density lipoprotein cholesterol
                                                                                                                       acyl CoA:cholesterol acyltransferase (ACAT), as deduced from a cyll CoA:cholesterol acyltransferase (ACAT), as deduced from a cyll-length ACAT DNA sequence (see AAA88835).

Coacyltransferases such as ACAT catalyse the formation of cholesterol esters from cholesterol and long chain fatty acids.

Coacyltransferase from cholesterol and long chain fatty acids.

Recombinant constructs of the invention are used to alter the biosynthesis and accumulation of sterols and tocopherols in transgenic plants. Seeds of such plants may contain elevated evels of sutcost is esters, and alpha-tocopherol, and reduced levels of campesterol and campestanol and their esters.

The seeds may also contain the novel sterol brassicastanol oil compositions to lower levels of low density lipoprotein cholesterol in blood serum. ACAT enzymes can be used in the present invention in produce elevated levels of phytosterol and/or phytostenol esters.
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                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 2771; DB 21; Length 520; 100.0%; Pred. No. 1.1e-272; 1ve 0; Mismatches 0; Indels 0;
                                                                                                           The present sequence is that of Arabidopsis thaliana
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                                                                             Disclosure; Page 58-59; 166pp; English.
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4atches 520; Conservative
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                                              blood serum -
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                                                                                                                                                                                                                                                                                                                                                                                                                                            In the present invention, cDNA libraries from Arabidopsis, corn, rice, soybean and wheat were screened for sequences with homology to a putative acyl CoA cholesterol acyltransferase related gene from Arabidopsis thaliana and diacylgiycend acyltransferases from Homo sapiens and Mus musculus. The CDNA clones identified from this process were used to form complete diacylgiycerol acyltransferase CDNA sequences. The present sequence is Arabidopsis thaliana diacylgiycerol acyltransferase protein. This sequence was used for homology Comparison with the novel diacylgiycerol acyltransferases. Diacylgiycerol acyltransferases blacylgiycerol acyltransferase are involved in the synthesis of triacylgiycerols. Alteration of the expression of the diacylgiycerol acyltransferase DNA combiguity of the expression of the level of oils in blant seeds. Inhibitors of diacylgiycerol acyltransferase may be useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MAILDSAGVITVIENGGGEFVDLDRLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVR
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                                                                                                                                                                                                                                                                                                                                                     Polynucleotides encoding diacylglycerol acetyltransferase, useful synthesis of triacylglycerols and increasing the level of oils in
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 520;
                                            corn; rice; soybean; wheat;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
           A. thaliana diacylglycerol acyltransferase protein
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100.0%; Pred. No. 1.1e-272;
ive 0; Mismatches 0;
                                           Diacylglycerol acyltransferase; corn; r
triacylglycerol; herbicide; EC2.3.1.20.
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                                                                                                                                                                                                              98US-0110602
99US-0127111
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nes 520; Conservative
                                                                                                                                                                                                                                                                                          Cahoon EB, Kinney AJ,
                                                                                        Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                        WPI; 2000-412308/35.
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31-MAR-1999;
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  August 30, 2003, 19:48:34 ; Search time 71 Seconds (without alignments) 1162.504 Million cell updates/sec
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SIDSI./gcgdata/geneseq/genesegp-embl./AA1981.DAT:*
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                  5.1.6
Compugen Ltd
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                    version :
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Maximum Match 100%
Listing first 45 summaries
                                                                                                         protein search, using sw model
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Gapop 10.0 , Gapext 0.5
                      GenCore
Copyright (c) 1993
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Maximum DB seq length: 2000000000
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2771
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Perfect score:
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Acyl-Coascholester
Human Diacylglycer
Corn diacylglycer
Corn diacylglycer
Human polypeptide
Human acylcoenzyme
Acetyl coenzyme A:
Weast acyl-coenzyme
Yeast acyl-coenzyme
Nouse acyl-coenzyme
Mouse acyl-coenz

feast acylcoenzyme

AAY94517 AAW43410 AAB97263 ALIGNMENTS

Rat acyl CoA: chole Acyl-CoA: chole Acyl-CoA: cholester Mouse dlacylglycer Bowine dlacylglyce Bowine dlacylglyce Bowine DGAT protel Bowine DGAT protel Bowine DGAT protel Human acylcoenzyme Caenorhabditis ele

AAY94513 AAX94513 AAX94516 AAX94516 AAB1570 AAX9452 AAX9452 AAX24974 AAX24974 AAX24974 AAX24974 AAX24974 AAX24974 AAX24974 AAX24974 AAX43409 AAX43409

Corn diacylgiycero Corn diacylgiycero Corn diacylgiycero Human ACAT Related

Wheat diacylglycer

2	AAB19740 standard; Protein; 520 AA.
×	
AC	AAB19740;
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Į	19-FEB-2001 (first entry)
×	
DE	Arabidopsis acvl CoA: cholesterol acvltransferase.
×	
KW	Acyl CoA: cholesterol acyltransferase; ACAT; transgenic plant;
ΚW	sterol; tocopherol; phytosterol; phytostanol; anticholesterolemic;
ΚW	hypolipemic.
×	
SO	Arabidopsis thallana.
X	
PN	WO200061771-A2.
×	
PD	19-OCT-2000.
X	
PF	12-APR-2000; 2000WO-US09696.
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A S	12-APR-1999; 99US-0128995.
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Z X	(MONS ) MONSANTO CO.
ΡΙ	Venkatramesh M. Corbin DR. Bhat GB. Boddunalli SS. Grebenok RI:
Ы	dizabal KD, Lassner MW, Rangwala SH.
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DR	WPI; 2000-665136/64.
DR	N-PSDB; AAA88835.
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Description

AAB19740 AAY94524 AAY96853

BB

Match Length

Score

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AAY54143 AAU00462

100.0 100.0 100.0 100.0 99.4 99.2 59.1

2771 2771 2771 2771 2771 2771 2753 2753 2767.5

AAY94512 AAY96854 AAY94519 AAY94518 17045/00/WO

PatentIn Ver. 2.1

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ITLE OF INVENTION: Acyl-CoA:Cholesterol Acyltransferase Related Nucleic ITLE OF INVENTION: Acid Sequences
                                                        CURRENT APPLICATION NUMBER: US/09/326,203A
CURRENT FILING DATE: 1999-06-04
PRIOR APPLICATION NUMBER: 60/088,143
PRIOR FILING DATE: 1998-06-05
PRIOR APPLICATION NUMBER: 60/108,389
PRIOR FILING DATE: 1998-11-12
                                                                                                                                                                              NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                    LENGTH: 432
                                                                                                                                                                                              SOFTWARE: 1
SEQ ID NO 25
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                        468 LSFFYPVLFVLFWFFGMAFN----FIVNDSRKK----PIWNVLMWTSLFLGNGVLLCFYSQ 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112 PAHRR----ARESPLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWF 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     145 EGRLMLEFDLLL--FSFGQLPLALMTW-------VPNFLYTLLVPYQTLW-LWAR 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         250 LRETVPGIFCVRRGKGISPPSFSSYL.----YFLFCPTLIYRETYPFTPSIRMNYVAKN 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97 PGKRKVFVARKSLI--DELMEVQH---FRIIYHMFIAGLWFLIISTL------AIDFID 144
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         427 RSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLVF--ITNY-LQERF 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               262 -----IRSLANAADKANPEVSYYVSLKSLAYFMVAPTLCYQPSYPRSACIRKGWVARQ 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   315 FAKLVIFTGFMGFIIEQYINPIVRN-SKHPLKGDLLYAIERVLKLSV-----PNLYVWLC 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --CIVWLKLVSYAHTSYD-
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 525;
                                                                                                                                                                                                          APPLICANT: Farese, Robert
APPLICANT: Farese, Robert
APPLICANT: D. 6579974ak, Sabine
APPLICANT: Erickson, Sandra
TITLE OF INVENTION: No. 6579974el Acyl COA:Cholesterol Acyl
TITLE OF INVENTION: Transferase (ACAT-2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
---LFKLWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 13.5%; Score 375; DB 4; L
Best Local Similarity 27.4%; Pred. No. 1.6e-28;
Matches 124; Conservative 73; Mismatches 162;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   484 GSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRK 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       472 TGPAWNILMW-TFLFMGQGIQVSLYCQEWYARR 503
                                                                                                                                                                                                                                                                                                      FILE REFERENCE: 6510-104US1
CURRENT APPLICATION NUMBER: US/09/328,857A
CURRENT FILING DATE: 1999-06-08
                                                                                                                                                                                                                                                                                                                                                                                                                              FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                        1998-06-23
                                                                                                                                  Sequence 3, Application US/09328857A Patent No. 6579974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               229 LRCDSAFLSGVTL--MLLT----
                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Cases, Sylvaine
                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER:
PRIOR FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ. ID NOS:
SOFTWARE: FastSEQ for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: mouse
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LENGTH: 525
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US-09-326-203A-25
Sequence 25, Application US/09326203A
Patent No. 6444876
PRERAL INFORMATION:
APPLICANT: LASSNEY, Mike

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59 FTVASVDLLMYLSTYFVVGIQYLCKWGVLKWGTTGWIFTSIYEFLFVIFYMYLTENILKL 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               362 NLYV-WLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMYRH 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---SYYVSLKSLAYFMVAPTLCYQPSYPRSACIRKGWVARQ 314
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421 IYFPCLRS-KIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLVFITNYL 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         :| : | |: |: | :| :| 352 VYHSSMSSFKLNKSQATLMTFFLSSVVHELAMYVIFKKLRFYLFFGMLQMPLVALTNTK 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          239 IC-AIFGTIFLMMIDAQILMYPVAMRALAVRNS-----EWTGILDRLLKWVGLLVDIVP 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  292 GFIVMYILDFYLIWDAILNCVAELTRFGDRYFYGDWWNCVSWADFSRIWNIPVHKFLLRH 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          179 KSCEFCSFELSSQSLSDQTQKFPNNISAKSFFWFTMFPTLIYQIEYPRTKEIRWSYVLEK
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                                                                                                                                                                                                                  Score 361; DB 4; Length 43;
Pred. No. 3e-27;
64; Mismatches 127; Indels
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412 FMRNRTIIGNVIFWLGICM 430
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                                                                                                                                                                                                                  13.0%; 28.5%;
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Best Local Similarity 28.5
Matches 108; Conservative
ORGANISM: yeast
PUBLICATION INFORMATION:
JOURNAL: Science
                                                                                                  PAGES: 1353-1356
DATE: 1996
                                                                                                                                                             US-09-326-203A-25
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CLASSIFICATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             183 ISLSIFPLAAFTVEKLVLQKY-----ISEPVVI-----FLHIIITWTEVLY-PVYVTLR 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        467
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ------ARRSLLDELLEVDHIRTI 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           131 SHAGLFNLCVVVLIAV-----NSRLIIE-NLMKYGW-LIRTDFWFSSRSLRDWPLFMCC 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       231 CDSAFLSGVTLMLLTCIVWLKLVSYAHT---SYDIRSLANAADKAN----PEVSYYVSLK 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   284 SLAYFWVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSK-H 342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAKSVĘDYWRMWNMPVHKWMVRHIY -- FPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPC 455
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PLKGDLLYAIERVLKLSV----PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWW 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R-----LFKLWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFW------FIFCIFGQ 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17 GGEFVDLDRLRRRKSRSDSSNGL-----LLSGSDNNSPSDDVGAPADVRDRLDSVVNDD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14.3%; Score 396; DB 2; Length 550;
26.7%; Pred. No. 1.5e-30;
Live 75; Mismatches 177; Indels 144;
                                                                                                                                                                                                                                                                                                 NAME: LAMPORT HAMMITTE, ANN.
REGISTRATION NUMBER: 34,858
REFERNCE/DOCKET NUMBER: DCI-033CPDV
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-2700
                                                                                                                                                        SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/121,396
                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/509,187
FILING DATE: 07/31/95
ATTORNEY/AGENT INFORMATION:
                                                                                                           MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
E: LAHIVE & COCKFIELD
28 STATE STREET
                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: (617) 227-2700
TELEFAX: (617) 742-4214
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 550 amino acids
TYPE: amino acids
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Best Local Similarity 26.7%
Matches 144; Conservative
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                                                                         ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                      CLASSIFICATION:
                                                               USA
                              BOSTON
                                                                                                                                                                                                         FILING DATE:
ADDRESSEE:
STREET: 28
CITY: BOST
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                                             STATE: M
COUNTRY:
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US-09-121-396-4
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Best Local Similarity 26.7%; Pred. No. 1.5e-30;
Matches 144; Conservative 75; Mismatches 177; Indels 144; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: U.S. SER. NO. 959,950
FILING DATE: October 14, 1992
FILING DATE: September 10, 1993
FILING DATE: September 10, 1993
ATTORNEY/AGENT INFORMATION:
REGISTRATION NUMBER: 34,858
                                                                                        ACYL COENZYME A: CHOLI ACYLTRANSFERASE (ACAT
                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: PCT/US93/09704A
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                                                     APPLICANT:
TITLE OF INVENTION: ACYL COENZYME A
TITLE OF INVENTION: ACYLTRANSFERASE
TITLE OF INVENTION: ACYLTRANSFERASE
OWBUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
Sequence 4, Application PC/TUS9309704A GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                               October 12, 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: (617) 227-2700
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 550 amino acids
TYPE: amino acids
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US-09-121-396-4
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                                                                                                                                                                                                                                                                                                                                                                                        183 ISLSIFPLAAFTVEKLVLQKY-----ISEPVVI-----FLHIIITMTEVLY-PVYVTLR 230
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---AYTLPPASRFIIIFEQIRFVMKAHSFVRENVPRVLNSAKEKSSIVPIPTVNQYL--- 298
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                                                                                                                                                                                                                                                                                                                                      -----ARRSLLDELLEVDHIRTI 141
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                                                                                                                                                                                                                                         17 GGEFVDLDRLRRRKSRSDSSNGL-----LLSGSDNNSPSDDVGAPADVRDRIDSVVNDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                       343 PLKGDLLYAIERVLKLSV----PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWW
                                                                                                                                                                                                            Gaps
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Cholesterol Acyltransferase
                                                                                                                                                                           14.3%; Score 396; DB 1; Length 550; 26.7%; Pred. No. 1.5e-30; ive 75; Mismatches 177; Indels 144;
                                                                                                                                                                                                                                                                       70 GSHFDDFVTNLIEKSASLDNGGCALTTFSVLEGEKNNHRAKDLRAPPE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Chang, Ta-Yuan and Chang, TTILE OF INVENTION: ACYL COENZYME A: NUMBER OF SEQUENCES: 9
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   & COCKFIELD, LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 4, Application US/08509187D Patent No. 5834283 GENERAL INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-2700
                                                             SEQUENCE CHARACTERISTICS:
LENGTH: 550 amino acids
TYPE: amino acid
                             TELEFAX: (617) 227-5941 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                      Query Match 14.3%
Best Local Similarity 26.7%
Matches 144; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: LAHIVE & COC
STREET: 28 State Street
                                                                                                                      ; MOLECULE TYPE: protein US-08-121-057-4
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MEDIUM TYPE: Floppy
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                                                                                                            TOPOLOGY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2; Length 550;
1.5e-30;
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APPLICANT: CHANG, CATHERINE C. Y.
TITLE OF INVENTION: ACYL COENZYME A: CHOLESTEROL
TITLE OF INVENTION: ACYLTRANSFERASE (ACAT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14.3%; Score 396; DB
26.7%; Pred. No. 1.5e
tive 75; Mismatches
                                                                                                                                                                                                  RECISTRATION NUMBER: 34,858
REFERENCE/DOCKET NUMBER: DCI-033cpdv
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)27-7400
TELEFRAX: (617)742-4214
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTER/STICS:
  US/08/509,187D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 4, Application US/09121396
Patent No. 5968749
GENERAL INFORMATION:
                                                                                                                                                                                       Lamport Hammitte, Ann
                      31-JUL-1995
                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Lamport Hammitte,
                                                                                                                                                                                                                                                                                                                                                                                                        : 550 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -OGKIFI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; MOLECULE TYPE: protein US-08-509-187D-4
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CORRESPONDENCE ADDRESS:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 144; Conserv
                                                     CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
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379 NILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVRHIYFPCL--RSKIPKTLAI 436
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           164 TDFWFSSRSLRDWPLFMCCISLSIFPLAAFTVEKLVLQKYI-----SEPVVIFL-HIII 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   59 TVIW-----TWWAMFLSTLSIPYF-----LFQPWAHGYSKSSHPLIYSLVHGLL 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      103 FLVPQLGVLGFVPTYVVL----AYTLPPASRFILILEQIRLIMRAHSFYRENIPRVLNAA 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                325 MGFIIEQYINPIVRNSK-HPLKGDLLYAIERVLKLSV----PNLYVWLCMFYCFFHLWL 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13 VYYIFERLCAPLFRNIKQEPFSA-----RVLVLCVFNSILPGVLILFLSFFAFLHCWL 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         437 IIAFLVSAVFHELCIAVPCR-----LFKLWAFLGIMFQVPLVFITNYLQERFGSTVGNM 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               217 TMTEVL----YPVYVTLRCDSAFLSGVTLMLLTCIVWLKLVSYAHT--SYDIRSLANAA 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               270 DKAN----PEVSYYVSLKSLAYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGF 324
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 ROSLL--DELFEVDHIRTIYHMFIALLILFVLSTIVVDYIDEGRLVLEFNLLAYAFGKFP 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98;
                                                                                                                                                                                                                                                         Length 409,
                                                                                                                                                                                                                                                     14.9%; Score 413; DB 4; Length 40
29.4%; Pred. No. 2e-32;
Live 73; Mismatches 139; Indels
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APPLICANT: CHANG, TA-YUAN
APPLICANT: CHANG, CATHERINE C. Y.
APPLICANT: CHANG, CATHERINE C. Y.
TITLE OF INVENTION: ACYL COENZYME A: CHOLESTE
TITLE OF INVENTION: ACYLTRANSFERASE (ACAT)
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS: 4
CORRESPONDENCE ADDRESS: ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 STATE STREET, SUITE 510
CITY: BOSTON
STATE: MA
COUNTRY: USA
ZIP: 10109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: DCI-033CP
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CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/121,057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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Patent No. 5484727
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ATTORNEY/AGENT INFORMATION:
NAME: LAMPORT HAMMITTE, ANN.
REGISTRATION NUMBER: 34,858
                                                                                                                                                                                                                                                                                                                                     Matches 129; Conservative
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MEDIUM TYPE: Floppy
        JOURNAL: J. Biol. Chem.
VOLUME: 270
PAGES: 26192-26201
                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
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                                                                                                                              ; DATE: 1995
US-09-326-203A-23
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US-08-121-057-4
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| Sequence 23, Application US/09326203A
| Patent No. 6444876
| GENERAL INFORMATION:
| APPLICANT: Lassner, Mike
| APPLICANT: Lassner, Mike
| TITLE OF INVENTION: Acyl-CoA:Cholesterol Acyltransferase Related Nucleic
| TITLE OF INVENTION: Acyl-CoA:Cholesterol Acyltransferase Related Nucleic
| TITLE OF INVENTION: Acyl-CoA:Cholesterol Acyltransferase Related Nucleic
| FILE REFERENCE: 17045/00/W0
| CURRENT APPLICATION NUMBER: US/09/326,203A
| PRIOR FILING DATE: 1998-06-04
| PRIOR PELING DATE: 1998-06-05
| PRIOR FILING DATE: 1998-11-12
| NUMBER OF SEQ ID NOS: 46
| NUMBER OF SEQ ID NOS: 46
| CONTINUED OF THE OFFICE O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     150 LIIENLMKYGWLIRTDFWFSSRSLRD---WPLFMCCISLSIFPLAAFTVEKLVLQKYISE 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----LANAADKANP----EVSY--YVSLKSLAYFMVAPTLCYQPSYPRSACIRKGW 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 311 VARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYA--IERVLKLSVPNLYVWLC 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            369 MFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVRHIYFPCLRS 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           207 PVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLT-CIVWLKLVSYAHTSYDIRS- 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         : |: ::: || :|: :|: || :|: || || || ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        429 KIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLV-FITNYLQERFGSTV 487
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25.1%; Score 696.5; DB 4; Length 386; 40.9%; Pred. No. 1.7e-60; Live 68; Mismatches 126; Indels 33
                                                                                                                                   6510-105p
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ATTORNEY/AGENT INFORMATION:
NAME: Field, Bret E
REGISTRATION NUMBER: 37,620
                                                                                                                          REFERENCE/DOCKET NUMBER: 65:
TELECOMUNIC/DION INFORMATION:
TELEPHONE: 650 327 3400
TELEFAX: 650 327 3231
                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO: 4
SEQUENCE CHARACTERISTICS:
LENGTH: 386 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 40.93
Matches 157; Conservative
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MOLECULE TYPE: peptide
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LENGTH: 409
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ORGANISM: 1
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                                                                                                                                                                                                                                                                                                                                                                                                                                              245 T-CIVWLKLVSYAHTSY-----DIRSLANAADK-----ANPEVSY--YVSLKSLAYFWV 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               291 APTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLY 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            351 A--IERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRM 408
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68 NDDAQGTANLAGDNNGGGDNNGGGRGGEGRGNADATFTYRPSVPAHRRARESPLSSDAI 127
                                                                                                                                                                                                                                                                 . 29
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APPLICANT: Lassner, Mike
APPLICANT: Rucazinsky, Diane
TITLE OF INVENTION: Acyl-CoA:Cholesterol Acyltransferase Related Nucleic
TITLE OF INVENTION: Acid Sequences
FILE REFERENCE: 17045/00/W0
GURRENT APPLICATION NUMBER: US/09/326,203A
CURRENT FILING DATE: 1999-06-04

CURRENT FILING DATE: 1999-06-04
                                                                                                                                                                                                                                                            8 GVTTVTENGGGEFVDLDRLRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVRDRIDSVV
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                                                                                                                                                                                                                         71; Gaps
                                                                                                                                                                               Length 498;
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                                                                                                                                                                               Query Match 27.8%; Score 770.5; DB 4; Best Local Similarity 36.3%; Pred. No. 1.2e-67; Matches 190; Conservative 83; Mismatches 179;
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PRIOR FILING DATE: 1998-11-12
NUMBER OF SEQ ID NOS: 46
SOFWMARE: Patentin Ver. 2.1
SEQ ID NO 18
LENGTH: 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 18, Application US/09326203A Patent No. 6444876 GENERAL INFORMATION:
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; ORGANISM: Caenorhabditis elegans
US-09-326-203A-18
                                         LENGTH: 498 amino acids
INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                      TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
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256 AHTSY---DIR-----SLANAADKA------NPEVSYY------VSLKSLA 286
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                                                                                                                                                      87 NNGGGRGGEGRGNADATFTYRPSVPAHRRARESPLSSDAIFKQSHA----GLFNLCVV 141
                                                                                                                                                                                                                                142 VLIAVNSRLIIENLMKYGWLIRTDFWFSS-----RSLRDWPLFMCCISLSIFPLAAFTVE 196
                                                                                                                                                                                                                                                                                                           KLVLOKYISEPVVIFLHIIITMTEVLYPVYVTLRCD-SAFLSGVTLMLLTCIVWLKLVSY 255
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      405 YWRMWNMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFL 464
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                                                                                                                  ---RSSFAQ 30
                                                                                                                                                                                          31 NGNSSRKSSEMRGPCEKV-----VH-----TAQDSLFSTSSGWINFRGFFNLSIL 75
                                                                            27 RRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVRDRIDSVVNDDAQGTANLAGDNNGGGD 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        347 DLLYA--IERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGD
                                        97;
    Length 496;
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                                        Indels
    DB 4;
                                      98; Mismatches 166;
Score 724.5; DB 4
Pred. No. 4.2e-63;
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TITLE OF INVENTION: sferase
NUMBER OF SEQUENCES: 6
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26.1%;
31.5%;
                                                                                                                7 RRRROPSETSNGSLASSR-
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APPLICANT: Smith, Steven
APPLICANT: Erickson, Sandra
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APPLICANT: Farese, Robert
                                        Conservative
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CITY: Palo Alto
STATE: CA
                    Similarity
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Query Match
Best Local Simil
Matches 166; (
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US-09-103-754A-4
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                                                                                                                      133 AGLFNLCVVVLIAVNSRLIIENIMKYGWLIRTDFWFSSRSLRD---WPLFMCCISLSIFP 189
                                                                                                                                                      LAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLT-CIV 248
                                                                                                                                                                                                                                                                                                                                                                                       296 YQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYA--IE 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNPV 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     414 HKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLV 473
        73 GTANLAGDNNGGGDNNGGGRGGGGGRGNADATFTYRPSVPAHRRARESPLSSDAIFKQSH 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                249 WLKLVSYAHTSY-----DIRSLANAADK-----ANPEVSY--YVSLKSLAYFMVAPTLC
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Patent No. 6344548
GENERAL INFORMATION:
GAPPLICANT: Facese, Robert
APPLICANT: Cases, Sylvaine
APPLICANT: Enteren
APPLICANT: Enteren
TITLE OF INVENTION: Sierase
NUMBER OF SEQUENCES:
CORRESPONDENCES:
ADDRESSEE: BOZICEVIC & Reed
STREET: 285 Hamilton Avenue, Suite 200
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APPLICATION NUMBER: US/09/103,754A
FILLING DATE:
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REGISTRATION NUMBER: 37,620
REFERENCE,DOCKET NUMBER: 6510
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650 327 3400
TELEFAX: 650 327 331
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MEDIUM TYPE: Diskette
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PRIOR APPLICATION DATA:
APPLICATION NUMBER:
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CITY: Palo Alto
STATE: CA
COUNTRY: USA
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APPLICANT: Lassner, Mike

APPLICANT: Lassner, Mike

APPLICANT: Lassner, Mike

TITLE OF INVENTION: Acid Sequences

CURRENT PELLING DATE: 1999-06-04

PRIOR PELLING DATE: 1999-06-04

PRIOR FILING DATE: 1998-06-05

PRIOR FILING DATE: 1998-11-12

NUMBER OF SEQ ID NOS: 46

SOFTWARE: PATCHTIN VET. 2.1

SEQ ID NO 17
                                                                                                                                                                                                                              84 GGDNNGGGRGGGGGRGNADATFTYRPSVPAHRRARESPLSSDAIFKQSHAGLFNLCVVVL 143
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     144 IAVNSRLIIENLMKYGWLIRTDFWFSSRSLRD---WPLFMCCISLSIFPLAAFTVEKLVL 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                            201 QKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLT-CIVWLKLVSYAHTS 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            260 YDIRS-----LANDADKANP----EVSY--YVSLKSLAYFMVAPTLCYQPSYPRSA 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       271
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRWWNPVHKWMVRHIY 422
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                                                                                                                                                                                                                                                                                                                                                                                  25 RIRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVRDRIDSVVNDDAQG-TANLAGDNNG
                                                                                                                                                                                                                                                                                      PAPNKDGDAGVGSGHWELRC------HRLQDSLFSSDSGF-SNYRGILNWCVVML
                                                              Gaps
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; Pred. No. 6.1e-68;
86; Mismatches 167; Indels 71;
  Length 488;
                                                              Indels
28.6%; Score 791.5; DB 3; 38.0%; Pred. No. 9.7e-70; iive 77; Mismatches 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     482 RFGSTVGNMIFWFIFCIFGQPMCVLLYYHD 511
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Patent No. 6444876
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Best Local Similarity 37.5%;
Matches 194; Conservative 86
                                                        Matches 194; Conservative
                             Similarity
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ORGANISM: Rattus sp
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US-09-326-203A-17
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; TYPE: PRT
; ORGANISM: Yeast
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PRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYAIERVLKLSV 360
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                             PNLYVWICMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWWYRH
                                            SPLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRDWPLF
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                                                                                                                                                ERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSMS 520
                                                                                                                                                               APPLICANT: Laroche, Andre J.
APPLICANT: Nykiforuk, Cory L.
APPLICANT: Nykiforuk, Cory L.
APPLICANT: Weselake, Randall J.
TITLE OF INVENTION: Diacylglycerol O-acyltransferase
FILE REFERENCE: 24015050
CORRENT APPLICATION NUMBER: US/09/593,359
CURRENT FILING DATE: 2000-06-14
NUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.1
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83.3%; Score 2309.5; DB 4
Best Local Similarity 84.8%; Pred. No. 8.2e-220;
Matches 442; Conservative 17; Mismatches 43;
                                                                                                                                                                                                                                                     Sequence 4, Application US/09593359
Patent No. 6552250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Brassica napus
CTHER INFORMATION: DGAT1
US-09-593-359-4
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LENGTH: 503
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APPLICANT: Oclkers, Peter
TITLE OF INVENTION: ISOLATION OF A GENE ENCODING DIACYLGLYCEROL
TITLE OF INVENTION: ACYLTRANSFERASE
FILE REFERENCE: 0575/56331
CORRENT APPLICATION NOWBER: US/09/165,042
CURRENT FILING DATE: 1998-10-01
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Patentin Ver. 2.0
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                                                                                                                       Sequence 2, Application US/09593359
Patent No. 6552250
GENERAL INFORMATION:
GENERAL Laroche, Andre J.
APPLICANT: Laroche, Andre J.
APPLICANT: Wykiforuk, Cory L.
APPLICANT: Weselake, Randall J.
TILLE OF INVENTION: Diacylglycerol O-acyltransferase
FILE REFERENCE: 24015050
480 QERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSMS
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; Pred. No. 1.8e-161;
10; Mismatches 14;
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CURRENT FILING DATE: 2000-06-14
NUMBER OF SEQ ID NOS: 17
SECTIARE: Patentin Ver: 2.1
SEQ ID NO 2
LENGTH: 341
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93.0%;
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Best Local Similarity 93.0%
Matches 317; Conservative
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DGAT2
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; OTHER INFORMATION:
US-09-593-359-2
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Sequence 5,
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Sequence 4
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1 MAILDSAGVTTVTENGGGEF......QPMCVLLYYHDLMNRKGSMS
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GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.
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US-09-326-203A-18
US-09-326-203A-23
US-09-326-203A-23
US-09-326-203A-23
US-09-121-396-4
PCT-US93-0970A-4
US-09-328-857A-4
US-09-328-857A-3
US-09-326-203A-24
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Patent No. 6444876
GENERAL INFORMATION:
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Ruezinsky, Diane
APPLICANT: Ruezinsky, Diane
ATITLE OF INVENTION: Acyl-CoA:Cholesterol Acyltransferase Related Nucleic
TITLE OF INVENTION NUMBER: 60/088,143
PRIOR PELING DATE: 1999-06-05
PRIOR PELING DATE: 1998-11-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRDWPLFM
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Sequence 17, A Sequence 63, A Sequence 63, A Sequence 8, Ap Sequence 18, Ap Sequence 527, Sequence 26, A Sequence 47, A Sequence 48, A Sequence 48, A Sequence 48, A Sequence 47, A Sequence 47, A Sequence 47, A Sequence 47, A Sequence 3, Ap Sequence 3, Ap Sequence 3, Ap Sequence 3, Ap
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           US-09-205-815B-42
US-09-165-042-10
US-09-184-658-63
US-09-170-496D-168
US-09-170-496D-168
US-09-170-496D-168
US-09-170-496D-168
US-09-170-496D-168
US-09-131-327
US-08-433-313-27
US-08-433-327-4764
US-08-223-325-44764
US-08-223-305C-48
US-08-223-305C-48
US-08-223-305C-47
US-08-223-305C-47
US-08-223-305C-47
US-08-223-305C-47
US-08-223-305C-47
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SEQ ID NO 2
LENGTH: 520
TYPE: PRT
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                                                                                                                                                                                                                                                                                                       164 TDFWFSSRSLRDWPLFMCCISLSIFPLAAFTVEKLVLQKYI-----SEPVVIFL-HIII 216
                                                                                                                                                                                                               347 DLLYA--IERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGD 404
                                                                                                                                                                                                                                                                                 YWRMWNMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFL 464
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59 TVIW-----TWWAMFLSTLSIPYF-----LFQPWAHGYSKSSHPLIYSLVHGLL 102
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               103 FLVFQLGVLGVLGFVPTYVVL----AYTLPPASRFILILEQIRLIMKAHSFVRENIPRVLNAA 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              270 DKAN----PEVSYYVSLKSLAYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGF 324
                                                                                                                                                               APPLICANT: Ruezinsky, Diane M.
TITLE OF INVENTION: Acyl-CoA:Cholesterol Acyltransferase Related Nucleic TITLE OF INVENTION: Acyl-CoA:Cholesterol Acyltransferase Related Nucleic CITLE OF INVENTION: Acid Sequences FILE REFERENCE: 16516.158
CURRENT APPLICATION NUMBER: US/10/157,855
CURRENT FILING DATE: 2002-05-31
PRIOR APPLICATION NUMBER: 09/326,203
                                                                                                              Gaps
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                                                                         Length 236;
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                                                                         DB 9;
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; Pred. No. 2.8e-30;
73; Mismatches 139;
                                                                       ; Score 573.5; DB (; Pred. No. 1.3e-45; 43; Mismatches 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 1999-06-04
PRIOR APPLICATION NUMBER: 60/088,143
PRIOR FILING DATE: 1998-06-05
PRIOR APPLICATION NUMBER: 60/108,389
PRIOR FILING DATE: 1998-11-12
NUMBER OF SEQ ID NOS: 46
SOFTWARE: PATCHIN VOT 2.1
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Publication No. US20020170091A1
GENERAL INFORMATION:
                                                                       20.78;
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Best Local Similarity 29.4%;
Matches 129; Conservative 7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Lassner, Michael W.
APPLICANT: Ruezinsky, Diane M
                                                                  Query Match
Best Local Similarity 47.8%;
Matches 109; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUBLICATION INFORMATION:
JOURNAL: J. Biol. Chem.
VOLUME: 270
PAGES: 26192-26201
DATE: 1995
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-764-853-499
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LENGTH: 409
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                                                           APPLICANT: Ruezinsky, Diane M.
TITLE OF INVENTION: Acid Sequences
TITLE OF INVENTION: Acid Sequences
FILE REFERENCE: 16516.158
CURRENT APPLICATION NUMBER: US/10/157,855
CURRENT FILING DATE: 1999-06-04
PRIOR PILING DATE: 1999-06-04
PRIOR FILING DATE: 1998-06-05
PRIOR FILING DATE: 1998-06-05
PRIOR APPLICATION NUMBER: 60/088,143
PRIOR PILING DATE: 1998-11-12
NUMBER OF SEO ID NOS: 46
SOFTWARE: Patentin Ver. 2.1
SEO ID NO 18
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VLIAVNSRLIIENLMKYGWLIRTDFWFSS-----RSLRDWPLFMCCISLSIFPLAAFTVE 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   256 AHTSY---DIR------SLANAADKA------NPEVSYY------VSLKSLA 286
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31 NGNSSRKSSEMRGPCEKV-----VH-----TAQDSLFSTSSGWTNFRGFFNLSIL 75
                                                                                                                                                                                                                                                                                                                                                                                                                                     27 RRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVRDRIDSVVNDDAQGTANLAGDNNGGGD
                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
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                                                                                                                                                                                                                                                                                                                                                                            Score 724.5; DB 14;
Pred. No. 2.4e-59;
8; Mismatches 166;
Sequence 18, Application US/10157855
Publication No. US20020170091A1
GENERAL INFORMATION:
APPLICANT: Lassner, Michael W.
APPLICANT: Ruezinsky, Diane M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-273-438-5
Sequence 5, Application US/10273438
Publication No. US20030072757A1
GENERAL INFORMATION:
APPLICANT: Farese, Robert V.
                                                                                                                                                                                                                                                                                                                            ORGANISM: Caenorhabditis elegans US-10-157-855-18
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26.1%; Sc
Best Local Similarity 31.5%; Pr
Matches 166; Conservative 98;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               429 KIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLV-FITNYLQERFGSTV 487
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60 QAGLLIHVANLATILCFPAAVVLLVESITPVGSLLALMAHTILFLKLFSYR----DVNSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          311 VARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYA--IERVLKLSVPNLYVWLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      369 MFYCFFHLWINILAELLCFGDREFYKDWWNAKSVGDYWRWWNMPVHKWMYRHIYFPCLRS
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SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 499
LENGTH: 236
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APPLICANT: Cases, Sylvaine
APPLICANT: Smith, Steven
APPLICANT: Erickson, Sandra
TITLE OF INVENTION: Diacyldlycerol O-Acyltransferase
FILE REFERENCE: UCAL-105CIP2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25.1%; Score 696.5; DB 15;
40.9%; Pred. No. 7.4e-57;
tive 68; Mismatches 126;
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Patent No. US20020090672A1
GENERAL INFORMATION:
TILLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PUZ06
CURRENT APPLICATION NUMBER: US/09/764,853
CURRENT FILING DATE: 2001-01-17
                                                                                                                                  CURRENT FILING DATE: 2002-10-16
PRIOR APPLICATION NUMBER: US/10/273,438
PRIOR APPLICATION NUMBER: US/10/040,315
PRIOR FILING DATE: 2001-10-29
PRIOR FILING DATE: 1998-11-09
PRIOR FILING DATE: 1998-11-09
PRIOR FILING DATE: 1998-08-28
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-24
PRIOR PRILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-23
PRIOR FILING DATE: 1998-06-23
PRIOR FILING DATE: 1998-06-23
PRIOR FILING DATE: 1998-06-23
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Matches 157; Conservative
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US-09-764-853-499
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NDDAQGTANLAGDNNGGGRGGRGGRGRGNADATFTYRPSVPAHRRARESPLSSDAI 127
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8 GVTTVTENGGGEFYDLDRLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVRDRIDSVV 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185 LSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLL
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                                               APPLICANT: Farese, Robert V.
APPLICANT: Cases, Sylvaine
APPLICANT: Cases, Sylvaine
APPLICANT: Smith, Steven
TITLE OF INVENTION: Diacylglycerol O-Acyltransferase
FILE REBERBENCE: UCAL-105CIP2
CURRENT APPLICATION NUMBER: US/10/273,438
CURRENT FILING DATE: 2002-10-16
PRIOR APPLICATION NUMBER: US/10/040,315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27.8%; Score 770.5; DB 15; 36.3%; Pred. No. 1.2e-63; tive 83; Mismatches 179;
                                                                                                                                                                                                                                                                                                                                                      F SEQ ID NOS: 10
: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                   APPLICATION NUMBER: 60/107,771
FILING DATE: 1998-11-09
APPLICATION NUMBER: PCT/US98/17883
FILING DATE: 1998-08-28
APPLICATION NUMBER: 09/103,754
                                                                                                                                                                                                                                                                                                   PRIOR FILING DATE: 1998-06-24
PRIOR APPLICATION NUMBER: 09/339,472
PRIOR FILING DATE: 1999-06-23
Sequence 7, Application US/10273438 Publication No. US20030072757A1 GENERAL INFORMATION:
                                                                                                                                                                                                       FILING DATE: 2001-10-29
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Best Local Similarity
Matches 190; Conserv
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LENGTH: 49
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SYSIMFLKLYSYRDVNLWCRQRRVKARAVSTGKKVSGAAQQAVSYPDNLTYRDLYYFIF 268
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            291 APTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLY 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A--IERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRM 408
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WNMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMF 468
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---HRLQDSLFSSDSG 90
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                                                                                                                                APPLICANT: Cases, Sylvaine
APPLICANT: Smith, Steven
APPLICANT: Erickson, Sandra
IIILE OF INVENTION: Diacylglycerol O-Acyltransferase
FILE REFERENCE: UCAL-105CIP2
CURRENT APPLICATION NUMBER: US/10/273,438
CURRENT APPLICATION NUMBER: US/10/273,438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 15;
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83; Mismatches 179;
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SOFTWARE: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: US/10/040,315 PRIOR FILING DATE: 2001-10-29 PRIOR APPLICATION NUMBER: 60/107,771 PRIOR PELING DATE: 1998-11-09 PRIOR PELING DATE: 1998-18-09 PRIOR PELING DATE: 1998-08-28 PRIOR APPLICATION NUMBER: 09/103,754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE: 1998-06-24
PRIOR APPLICATION NUMBER: 09/339,472
PRIOR FILING DATE: 1999-06-23
                         Sequence 10, Application US/10273438 Publication No. US20030072757A1 GENERAL INFORMATION:
                                                                                      APPLICANT: Farese, Robert V. APPLICANT: Cases. Sulvair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 36.34
Matches 190; Conservative
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US-10-273-438-10
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ORGANISM:
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Sequence 17, 4823-14/
Sequence 17, 48plication US/10157855
Publication No. US20020170091A1
GENERAL INFORMATION:
APPLICANT: Lassner, Michael W.
APPLICANT: Lassner, Michael W.
TITLE OF INVENTION: Acid Sequences
TITLE OF INVENTION: Acid Sequences
FILE REFERENCE: 16516.188
CURRENT FILING DATE: 1999-06-04
PRIOR FILING DATE: 1999-06-04
PRIOR FILING DATE: 1998-06-06
PRIOR FILING DATE: 1998-11-12
PRIOR FILING DATE: 1998-11-12
NUMBER OF SEQ ID NOS: 46
SOFTWARE: Patentin Ver. 2.1
FUNDER DATE: Patentin Ver. 2.1
      GTANLAGDNNGGGDNNGGGRGGGEGRGNADATFTYRPSVPAHRRARESPLSSDAIFKQSH 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLT-CIV 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WLKLVSYAHTSY----DIRSLANAADK-----ANPEVSY--YVSLKSLAYFWVAPTLC 295
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RVLKLSVPNLYVWLCMFYCFFHLWLN1LAELLCFGDREFYKDWWNAKSVGDYWRWWNMPV 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22 QGGSGPMYDEEEVR-----DAAVGPDLGAGGDAPAPA-PVPAPAHTRDK------DRQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   133 AGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRD---WPLFMCCISLSIFP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 27.9%; Score 773.5; DB 14; Best Local Similarity 37.5%; Pred. No. 6.4e-64; Matches 194; Conservative 86; Mismatches 167;
                                                                       511
                                                   482 RFGSTVGNMIFWFIFCIFGQPMCVLLYYHD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: PRT
; ORGANISM: Rattus sp.
US-10-157-855-17
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLT-CIVWLKLVSYAHTS 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YDIRS-----LANAADKANP----EVSY--YVSLKSLAYFWVAPTLCYQPSYPRSA 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        271
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RRRRTGSRPSSHGG-------GGPAAAEEE----VRDAAAGPDVGAAGDAPA 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PAPNKDGDAGVGSGHWELRC------HRLQDSLFSSDSGF-SNYRGILNWCVVWL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LYVWICMFYCFFHLWLNILAELLCFGDREFYRDWWNAKSVGDYWRMWNMPVHKWMVRHIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25 RLRRRSRSDSSNGLLLSGSDNNSPSDDVGAPADVRDRIDSVVNDDAQG-TANLAGDNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             84 GGDNNGGGRGGGEGRGNADATFTYRPSVPAHRRARESPLSSDAIFKQSHAGLFNLCVVVL
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                                                               QERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSMS 520
                                                                              APPLICANT: Frese, Robert V.
APPLICANT: Cases, Sylvaine
APPLICANT: Smith, Steven
APPLICANT: Smith, Steven
APPLICANT: Smith, Steven
APPLICANT: Erickson, Sandra
TITLE OF INVENTION: Diacylglycerol O-Acyltransferase
FILE REFERENCE: UCAL-105CIP2
CURRENT FILING DATE: 2002-10-16
PRIOR APPLICATION NUMBER: US/10/040,315
PRIOR APPLICATION NUMBER: G0/10/771
PRIOR APPLICATION NUMBER: 60/10/771
PRIOR FILING DATE: 1998-10-9
PRIOR FILING DATE: 1998-06-24
PRIOR PELING DATE: 1998-06-24
PRIOR APPLICATION NUMBER: 09/103,754
PRIOR FILING DATE: 1999-06-23
NUMBER OF SEQ ID NOS: 10
SOFTWARE FELING DATE: 1999-06-23
NUMBER OF SEQ ID NOS: 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28.6%; Score 791.5; DB 15; 38.0%; Pred. No. 1.3e-65; Live 77; Mismatches 174;
                                                                                                                                                                      Sequence 6, Application US/10273438 Publication No. US20030072757A1 GENERAL INFORMATION:
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Best Local Similarity 38.0%
Matches 194; Conservative
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   SSKSLRDWPLLMCCLSLQILPLAAFLVEKLAQQRHLTERAVVTLHITITTAAILYPVLVI 236
                                                                                                        AYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLK 345
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TITLE OF INVENTION: Plant Diacylglycerol O-transferase and
TITLE OF INVENTION: Uses Thereof
FILE REFERENCE: UCAL-105CIP3
CURRENT APPLICATION NUMBER: US.210/223,076
CURRENT FILING DATE: 2001-10-29
PRIOR FILING DATE: 2001-10-29
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1998-08-28
PRIOR FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOSS: 17
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62.0%; Score 1717; DB 15;
Best Local Similarity .93.0%; Pred. No. 1.7e-152;
Matches 317; Conservative 10; Mismatches 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 7, Application US/10223076; Publication No. US20030074695A1; GENERAL INFORMATION:
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                                                                                                                                       389
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                                                                   329
                                                                                                                                                       CIAVPCRLFKLWAFLGIMFQVPLVFITNYLQERF-GSTVGNMIFWFIFCIFGQPMCVLLY 508
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EQYINPIVRNSKHPLKGDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGD
                                                                                                                                                                                                         REFYKDWWNAKSVGDYWRMWNMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHEL
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                                                                 -- ANPEVSYYVSLKSLAYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFII
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAPELICANT: Facese, Robert V
APPLICANT: Facese, Robert V
APPLICANT: Cases, Sylvaine
TITLE OF INVENTION: Plant Diacylglycerol O-transferase and
TITLE OF INVENTION: Plant Diacylglycerol O-transferase and
TITLE OF INVENTION: Boss Thereof
FILE REFERENCE: UCAL-105CIP3
CURRENT APPLICATION NUMBER: US/10/223,076
CURRENT FILING DATE: 2001-10-29
PRIOR APPLICATION NUMBER: 10/9/40,315
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR PRIOR FILING DATE: 1998-08-28
PRIOR PRILING DATE: 1998-08-28
PRIOR FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 17
SECOTTO NO HINGOWS VERSION 4.0
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66.5%; Score 1842.5;
Best Local Similarity 67.0%; Pred. No. 5.4e
Matches 358; Conservative 49; Mismatches
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Publication No. US20030074695A1
GENERAL INFORMATION:
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LENGTH: 532
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MCCLESES VEFLARETVERMY LUNE LSEEVALILHY LITMIEVLY PY VYTHRÜDSAELSGV 222 TLMLLTCIVWLKLVSYAHTSYDIRSLANAADKANPEVSY VYSLKSLAY FMVAPTLCYQPS 299	OY 235 FLSGVTAMLIGCTWHKLYSYAHYSYDIRGLANAADKFVSYYVSLKSLAY 1:	SLKSLAY 287           SLKSLAY 286
YPRSACIRKGWVARQFAKLVIFTGFWGFIIEQYINPIVRNSKHPLKGDLLYAIERVLKLS 359 	Db 287 FWVAPILCYQPSYPRSSCIRKGWVRQFVKLIVFIGLMGFIIEQYINPIVRNSKHPLKGD Oy 348 LLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWR	KHPLKGD 346 SVGDYWR 407
VPNLYVWLCMPYCFFHLMLNILAELLCFGDREFYRDWNARGSVGDYWRMWNMPVHKMAVR 419 	347	
	407	
OERFGSTVGNMIFWFIFCIFGOPMCVLLYYHDLMNRKGSMS 520 		516
	RESULT 5 US-10-223-076-15 ; Sequence 15. Application US/10223076 ; includence 15.	
; Sequence 11, Application US/10223076 ; Publication No. US20030074695A1	; GENERAL INC. USZUGYU/4095AI ; GENERAL INCRMAILON: ; APPLICANT: Farese, Robert V	
ATION: rese, Robert V	APPLICANT: Cases, Sylvair TITLE OF INVENTION: Plant	
) APFLICANT: Cases, Sylvaine TITLE OF INVENTION: Plant Diacylglycerol O-transferase and TITLE OF INVENTION: Uses Thereof	; TITLE OF INVENTION: Uses Thereof ; FILE REFERENCE: UCAL-105CIP3 : CIRRENT APPLICATION NIMMER: 15/10/203.076	
FILE REFERENCE: UCAL-105CIP3 CURRENT APPLICATION NUMBER: US/10/223,076	CURRENT FILING DATE: 2001-10-29 PRIOR APPLICATION NUMBER: 10/040,315	
CURRENT FILING DATE: 2001-10-29 PRIOR APPLICATION NUMBER: 10/040,315	PRIOR FILING DATE: 2001-10-29 PRIOR APPLICATION NUMBER: 09/339,47	
DATE: 2001-10-29 TION NUMBER: 09/339,472	; PRIOR FILING DATE: 1999-06-23 ; PRIOR APPLICATION NUMBER: 60/107,771	-
FRIOR FILING DATE: 1999-06-25 PRIOR APPLICATION NUMBER: 60/107,771 PRIOR FILING DATE: 1998-11-09	; PRIOR FILING DATE: 1998-11-09 ; PRIOR APPLICATION NUMBER: PCT/US98/17883 ; PRIOR FITING DAME: 1998-08-28	
APPLICATION NUMBER: PCT/US98/17883 FILING DATE: 1998-08-28	; PRIOR APPLICATION NUMBER: 09/103,754 ; PRIOR FIFTING DATE: 1998-06-24	
APPLICATION NUMBER: 09/103,754 FILING DATE: 1998-06-24	; NUMBER OF SEQ ID NOS: 17 ; SOFTWARE: FastSEQ for Windows Version 4.0	
SEQ ID NOS: 17 FastSEQ for Windows Version 4.0	; SEQ ID NO 15 ; LENGTH: 534	
	; TYPE: PRT ; ORGANISM: Piralla frutescens ns-10-223-076-15	
Tropaeolum majus 11	Query Match 66.9%;	
67.88;	Similarity 65.3%; Pred. No. 4.5e-165; 9; Conservative 49; Mismatches 92; Indels	50; Gaps 9;
Pred. No. 1.5e-157 14; Mismatches 88	TTVTENGGGEFVDLDRLRRRKSRSDSSNGLLLSGSD	SDDVGAP 56
MAILDSAGVTTVTENGGGEFVDLDRLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAP 56	:	47
	QY 57 ADVRDRIDSVVNDDAQGTANLAGDNNGGGDNNG	GGRGGGE 96
57 ADVRDRIDSVVNDDAQGTANLAGDNNGGGDGGGGGGGGGGGGGGGGGGGGGGGGGGGG	DD 48EAESAINDSENVRNDANLIENLRGGAVESENEKQESYGKEEGAKVKENGETSNGN	  GETSNGN 102
DRVGAMENAT	Qy 97 GRGNADATFTYRPSVPAHRRARESPLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLM	LIIENLM 156
	103	
DWPLEMCCISLSIFPLAAETVEKLVLQKYISEPVVIFLHIIITWTEVLYPVYVTLRCDSA 234	Db 163 KYGWLIKSGFWFSSTSLRDWPLLMCCLSLPVFALASFLVEKLVKLNYIPP	VFLHVTI 222

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PLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRDWPLFM 180
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TITLE OF INVENTION: Plant Diacylglycerol O-transferase and
TITLE OF INVENTION: Uses Thereof
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: GCAL-105CIP3
CURRENT APPLICATION NUMBER: US/10/223,076
CURRENT FILING DATE: 2001-10-29
PRIOR APPLICATION NUMBER: 10/40,315
PRIOR APPLICATION NUMBER: 09/339,472
PRIOR PILING DATE: 2001-10-29
PRIOR PELING DATE: 1999-06-23
PRIOR APPLICATION NUMBER: 60/107,771
PRIOR APPLICATION NUMBER: 60/107,771
PRIOR PILING DATE: 1998-11-09
PRIOR FILING DATE: 1998-11-09
PRIOR FILING DATE: 1998-06-24
PRIOR FILING DATE: 1998-06-28
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Publication No. US20030074695A1
GENERAL INFORMATION:
APPLICANT: Farese, Robert V
APPLICANT: Cases, Sylvaine
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84.8%;
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Best Local Similarity 84.8 Matches 442; Conservative
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US-10-223-076-9
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PLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRDWPLFM
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Publication No. US20030074695A1
GENERAL INFORMATION:
APPLICANT: Farese, Robert V
APPLICANT: Cases, Sylvaine
TITLE OF INVENTION: Plant blacylglycerol O-transferase and
TITLE OF INVENTION: Plant blacylglycerol O-transferase and
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Pred. No. 5.8e-251;
Mismatches 0;
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CURRENT APPLICATION NUMBER: US/10/223,076
CURRENT FILING DATE: 2001-10-29
PRIOR APPLICATION NUMBER: 10/040,315
PRIOR FILING DATE: 2001-10-29
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1999-06-23
PRIOR FILING DATE: 1998-11-09
PRIOR FILING DATE: 1998-10-09
PRIOR FILING DATE: 1998-10-09
PRIOR FILING DATE: 1998-10-09
PRIOR FILING DATE: 1998-10-09
PRIOR FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 17
SOFTWARE: FEALSEQ for Windows Version 4.0
SEQ ID NO 3
LENGTH: 520
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           GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	Sequence 2, Appli	'n	6	Sequence 11, Appl	Sequence 15, Appl	Sequence 13, Appl	Sequence 7, Appli	9	17,	7, A	10,	18,	Sequence 5, Appl1	Sequence 499, App	Sequence 23, Appl
SUMMAKIES	ID	US-10-157-855-2	US-10-223-076-3	US-10-223-076-9	US-10-223-076-11	US-10-223-076-15	US-10-223-076-13	US-10-223-076-7	US-10-273-438-6	US-10-157-855-17	US-10-273-438-7	US-10-273-438-10	US-10-157-855-18	US-10-273-438-5	US-09-764-853-499	US-10-157-855-23
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	% Query Match Length DB	520	520	503	518	534	532	341	488	200	498	498	496	386	236	409
,	& Query Match	100:0	100.0	83.3	67.8	6.99	66.5	62.0	28.6	27.9	27.8	27.8	26.1	25.1	20.7	14.9
	Score	2771	2771	2309.5	1880	1854	1842.5	1717	791.5	773.5	770.5	770.5	724.5	696.5	573.5	413
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                                                                                           ILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVRHIYFPCLRSKIPKTLAIIIA 439
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Rhabditidae; Peloderinae; Caenorhabditis.
NCBI_TaxID=6239;
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Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases
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InterPro; IPR001719; AP_endnuclease2.
PROSITE; PS00729; AP_NUCLEASE_F2_1; 1.
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EMBL; 292835; CAB07399.1; -.
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    Mismatches 166;
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98;
166; Conservative
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Search completed: August 31, 2003, 04:58:58 Job time : 78 secs œ

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RA Adams M.D., Celniker S.E., Holf R.A., Evans C.A., Gocayne J.D.,
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RA Gamestides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA Gacge R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Barndon R.C., Ragers Y.H., Blazej R.G., Champe M., Pfelifer B.D.,
RA Barlew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Ballew R.M., Basu A., Barman B.P., Bhandari D., Bolshevo S.,
RA Abril J.F., Agbayani A., An H.J., Andrews Pfannkch C., Baldwin D.,
RA Ballew R.M., Basu A., Barman B.P., Bhandari D., Bolshevo S.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Cherry J.W., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.W., Cawley S., Danke C., Perraz C., Ferriers B.,
R. Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Borlos B., Delcher A., Deng Z., Mays A.D., Dew I., Deviz S.M.,
RA Fosler C., Gabrielian A.E., Garrell J.H., Gu Z., Gelbart W.M., Glasser K.,
RA Rosler C., Gabrielian A.E., Garrell J.H., Gu Z., Gelbart W.M., Glasser K.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.H., Ibegwam C.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Lasko P., Lei Y., Murphy B., Murphy L., Muzhy D.M., Nelson D.L.,
Rab Rainert K., Remington K., Sunders R.D., Scheeler F., Shen H.,
Rheibert K., Remington K., Saunders R., Shen H.,
Shier E., Spradling A.C., Stapleton M., Stupski M.P., Snith T.,
Spier E., Spradling A.C., Stapleton M., Stupski M.P., Snith T.,
                                                                                               415
                                                                                                                                                                                                               PSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYA--IERV
                                                                                                                  WMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLV-F
                                            180 INFPRSPRIRKRFLLRRILEMLFFTQLQVGLIQQWMVPTIQNSMKPFK-DMDYSRIIERL
                                                                                            LKLSVPNLYVWLCMFYCFFHLWLNIIAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHK
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LD33852p (CG31991-PA).

MDY OR CG13273 OR CG17937 OR CG17938 OR CG31991.

Drosophila melanogaster (Fruit fly).

Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;

Meoptera; Endopterrygota; Diptera; Brachycera; Muscomorpha;

Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
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                                                                                                                                                                                                                                                                                                            359 VGRFFQGNY----GNAAVW-LSLIIGQPIAVLMYVHD 390
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A Evans C.A., Gocayne J.D., Amanatides P.G., Brandon R.C., Rogers Y.,

Banzon J., An H., Baldwin D., Banzon J., Beeson K.Y., Busam D.A.,

Carlson J.W., Center A., Champe M., Davenport L.B., Dietz S.M.,

A Dodson K., Dorsett V., Doup L.E., Doyle C., Dresnek D., Farfan D.,

Ferriera S., Frise E., Galle R.F., Garg N.S., George R.A.,

Gonzalez M., Houck J., Hoskins R.A., Hostin D., Howland T.J.,

A Degvam C., Jalali M., Kruse D., Li P., Mattel B., Moshrefi A.,

McIntosh T.C., Moy M., Murphy B., Nelson C., Nelson K.A., Nunco J.,

A Pacleb J., Paragas V., Park S., Patel S., Pfeiffer B.,

A Phonanenavong S., Pittman G.S., Puri V., Richards S., Scheeler F.,

Stapleton M., Strong R., Svirskas R., Tector C., Tyler D.,

Millams S.M., Zaveri J.S., Smith H.O., Venter J.C., Rubin G.M.;

T. Sequencing of Dorsophila melanogaster genome "..
Svirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X., Wang Z.Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Williams S.M., Woodager, Worley K.C., Wu D., Yang S., Yao Q.A., Ye J., Yeh R.F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L., Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O., Glibbs R.A., Myers E.W., Rubin G.M., Venter J.C.; "The genome sequence of Drosophila melanogaster."; Science 287:2185-2195(2000).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Adams M.D., Celniker S.E., Gibbs R.A., Rubin G.M., Venter C.J.; Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
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; Pred. No. 1.6e-52;
96; Mismatches 202; Indels 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
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Submitted (SEP-2002) to the EMBL/GenBank/DDBJ databases.
EMBL: AVOS1835; AAK93259.1; -
EMBL: AE003652; AAN10972.1; -
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Pfam; PF03062; MBOAT; 1.
PROSITE; PS00225; CRYSTALLIN_BETAGAMMA; 1.
FK5 AA; 64943 MW; 118B2AF6A385C569 CRC64;
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InterPro; IPR004299; MBOAT_fam.
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Matches 179; Conservative
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                                                                                                                                                      DIR-----SLANAADKAN----PEVSY--YVSLKSLAYFWVAPTLCYQPSYPRSAC 305
                                                                                                                                                                                                                         364 YVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMYRHIYF 423
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                                                                  AVNSRLIIENLMKYGWLIRTDFWFSSRSLRD----WPLFMCCISLSIFPLAAFTVEKLVLQ
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Catarrhini; Hominidae; Homo.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-Ovary;
Strauberg R.;
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; BC006263; AAH06263.1; -.
Acyltransferase; Transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9067C3BD78F7DAC6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-JNA-2003 (TrEMBLrel. 23, Last annotation update)
Similar to diacylglycerol O-acyltransferase (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB .4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 26.5%; Score 735.5; DB.4; Best Local Similarity 41.6%; Pred. No. 1.5e-53; Matches 165; Conservative 70; Mismatches 129;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GSTVGNMIFWFIFCIFGQPMCVLLYXHD 511
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiéns (Human).
Eukaryota; Metazoa; Chordata;
Mammalla; Eutheria; Primates;
NCBL_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    403 AA; 46662 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
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SEQUENCE FROM N.A.
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SEQUENCE
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Q9BRH5;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DVNLWCRERRAGAKAKAALAGKAANGGAAQRTVSYPDNLTYRDLYYFLFAPTLCYELNFP
                                                                                                                                                                                                                     HIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLVFITNYL
                                                                HTSYDIR------SLANAA---DKANPEVSY--YVSLKSLAYFMVAPTLCYQPSYP
                                                                                                                                   RSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYA--IERVLKLS
                                                                                                                                                                                                    VPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVR
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LVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLT-CIVWLKLVSYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nonneman D.J., Rohrer G.A.;
"Linkage mapping of porcine DGAT1 to a region of porcine chromosome that contains QTL for growth and fatness.";
Submitted (MAY-2002) to the EMBL/GenBank/DDBJ databases.
EMBL; AY093657; AAM19083.1;
EMBL; AY116586; AAM6767.1;
InterPro; IPR004299; MBOAT_fam.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nonneman D.J., Rohrer G.A.; "Linkage mapping and nucleotide variation of porcine diacylglycerol acyltransferase (DGAT1)."; Submitted (MAR-2002) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Euteleostomi;
Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Porcine gene discovery by normalized cDNA-library sequencing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 489;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cluster assembly.";
Submitted (MAY-2002) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Acyltransferase; Transferase.
SEQUENCE 489 AA; 55815 MW; 45EFB33D7F3FAACD CRC64;
                                                                                                                                                                                                                                                                                                                                       QERFGSTVGNMIFWFIFCIFGQPMCVLLYYHD--LMNRK 516
                                                                                                                                                                                                                                                                                                                                                         --FRGNYGNAAVW-LSLIIGQPVAVLMYYHDYYVLNRE 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalla; Eutheria; Cetartiodactyla; Suina; Suidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-OCT-2002 (TrEMBLrel. 22, Created)
01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
01-OCT-2003 (TrEMBLrel. 23, Last annotation update)
01ecylglycerol acyltransferase.
05AT OR DAATI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26.7%; Score . 9e-54,
35.8%; Pred. No. 9e-54,
...e 82; Mismatches 181;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         489 AA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
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Best Local S
Matches 182
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91 VMLILSNARLFLENLIKYGILV-DPIQVVSLFLKDPYSWPALCLVIVANIFAVAAFQVEK 149
                                                                                                                                                         150 RLAVGALTEQAGLLLHGVNLATILCFPAAVAFLLESITPVGSVLALMVYTILFLKLFSYR 209
                                                                                                                                                                                                                                                                  210 DVNLWCRERRAGAKAKAALAGKKANGGAAQRTVSYPDNLTYRDLYYFLFAPTLCYELNFP 269
                                                                                                                                                                                                                                                                                                               302 RSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYA--IERVLKLS 359
                                                                                                                                                                                                                                                                                                                                                  VPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWWVR 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                   420 HIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLVFITNYL 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         389 HFYKPMLRRGSSKWAARTAVFLASAFFHEYLVSIPLRMFRLWAFTGMMAQIPLAWIVGRF 448
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Winter A., Kraemor W., Werner F.A.O., Kollers S., Kata S.,
Durstewitz G., Buitkamp J., Womack J.E., Thaller G., Fries R.;
"Association of a lysine-222/alanine polymorphism in a bovine gene encoding acylCoA:diacylglycerol acyltransferase (DGAT1) with variation at a quantitative trait locus for milk fat content.";
Proc. Natl. Acad. Sci. U.S.A. 0:0-0(2002).
                                                                                                           LVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLT-CIVWLKLVSYA
                                                                                                                                                                                                              HTSYDIR-----SLANAADKAN-----PEVSY--YVSLKSLAYFMVAPTLCYQPSYP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     50 KDGDVD-----VGSGHWD-----LRCH-RLODSLFSSDSGF-SNYRGILNWCV
        VVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRD---WPLFMCCISLSIFPLAAFTVEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
Bovidae; Bovinae; Bos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              75;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Acyl-CoA:1,2-diacÿlglycerol O-transferase (EC 2.3.1.20).
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Last annotation updat
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InterPro; IPR004299; MBOAT_fam.
Pfam; PF03062; MBOAT; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     489 AA; 55445 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Acyltransferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-OCT-2002 (TrEMBLrel..22, 01-OCT-2002 (TrEMBLrel. 22, 01-MAR-2003 (TrEMBLrel. 23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   36.48;
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                                                                                                                                                                                      316 FLKLFSYRDVNIMCRQRRVKAKAVSAGKKVSGAAAQNTVSYPDNLTYRDLYYFIFAPTLC 275
                                                                                                                                                                                                                                                                                                                                                                                             81 NNGGCDNNGGGRGGGGGRGNADATFTYRPSVPAHRRARESPLSSDAIFKQSHAGLFNLCV 140
                                                     AGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRD---WPLFMCCISLSIFP 189
                                                                                      LAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLT-CIV, 248
                                                                                                                                                                                                                                                                                                                                                                  YQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYA--IE 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPV 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLV 473
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EMBL: AYO65621; AAL49962.1; -.

InterPro; IPR004299; MBOAT_fam.

Pfam; PF03062; MBOAT; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WLKLVSYAHTSY - - - - DIRSLANAADK - - - - - ANPEVSY - - YVSLKSLAYFMVAPTLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11 RRRRTGSRPS----IQGGSGPAAAEEEVRDVGAGGDAPVRDT-------D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-21686133; PubMed-11827942;
Grisart B., Coppieters W., Farnir F., Karim L., Ford C., Berzi P.,
Cambisano N., Mni M., Reid S., Simon P., Spelman R., Georges M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FITHYLQERFGSTVGNMIFWFIFCIFGQPMCVLLYYHD 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUN-2002 (TrEMBLrel. 21, Last sequence update) 01-MAR-2003 (TrEMBLrel. 23, Last annotation update) Diacylglycerol acyltransferase 1 (EC 2.3.1.20).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a; Acyltransferase.
489 AA; 55601 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-JUN-2002 (TrEMBLrel. 21,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bos taurus (Bovine).
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TSV---
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Best Local
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49

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96

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201 QKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLT-CIVWLKLVSYAHTS 259
                                                                                                                                                                                                                                                                                                                         144 IAVNSRLIIENLMKYGWLIRTDFWFSSRSLRD---WPLFMCCISLSIFPLAAFTVEKLVL 200
                                                                                                                                                                                                                                                                                                                                                                                   260 YDIRS-----LANAADKANP----EVSY--YVSLKSLAYFMVAPTLCYQPSYPRSA 304
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         RIRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVRDRIDSVVNDDAQG-TANLAGDNNG 83
                                                                                                                                                                                                                                                                                                                                                                                                                84 GCDNNGGGRGGGGGRGNADATFTYRPSVPAHRRARESPLSSDAIFKQSHAGLFNLCVVVL
                                                                                                                               PAPNKDGDAGVGSGHWELRC------HRLQDSLFSSDSGF-SNYRGILNWCVVML
                                                                                                                                                                                                                           GGGSGPWVDEEEVR-----DAAVGPDLGAGGDAPAPA-PVPAPAHTRDK-----DRQ
                                                       ----GGPAAAEEE----VRDAAAGPDVGAAGDAPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            305 CIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYA--IERVLKLSVPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        363 LYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVRHIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 423 FPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLV-FITNYLQE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rattus norvegicus (Rat).
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus
NCBI_TaxID-10116;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-Various strains;

Harada Y., Watanabe T.K., Tanigami A.;

Submitted (JUN-2001) to the EMBL/GenBank/DDBJ databases.

EMBL, AB062769; BAC43739.1;

EMBL, AB062761; BAC43741.1;

EMBL, AB062763; BAC43741.1;

EMBL, AB062763; BAC43741.1;

EMBL, AB062763; BAC43741.1;

EMBL, AB062763; BAC43741.1;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-WAR-2003 (TrEMBLrel. 23, Created)
01-WAR-2003 (TrEMBLrel. 23, Last sequence update)
01-WAR-2003 (TrEMBLrel. 23, Last annotation update)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Acyltransferase; Transferase.
SEQUENCE 500 AA; 57086 MW;
                                                  RRRRTGSRPSSHGG-----
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                                                                                                                                                                                                                                                                                                                                                             240 TLMLLTCIVWLKLVSYAHTSYDIRSLANAADKANPEVSYYVSLKSLAYFMVAPTLCYQPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360 VPNLYVWICMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVR
                                                                                                                                                                                                                                                                                          Gaps
                               Putative
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Nykiforuk C.L., Laroche A., Weselake R.J.;
"Isolation and Sequence Analysis of a Novel cDNA Encoding a Putati
Diacylglycerol Acyltransferase from a Microspore-derived Cell
Suspension Culture of Brassica napus L. cv Jet Neuf (Accession No. AF15524). (PGR99-123).";
Plant Physiol. 1.20:1207-1207(1999).
EMBL; AF155224; AAAD40881.1;
Acyltransferase; Transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Hypothetical protein (Similar to diacylglycerol O-acyltransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         homolog 1) (Mouse).
Homo saplens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
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                                                                                                                                                                                                                                            Length 341;
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                                                                                                                                                                                                                                                                                          Indels
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Submitted (FEB-2002) to the EMBL/GenBank/DDBJ databases.
EMBL; BC015762; AAH15762.1;
EMBL; BC02565; AAH23565.1;
InterPro; IPR004299; MBOAT_fam.
Pfam; PF03062; MBOAT_fam.
Hypothetical protein; Acyltransferase; Transferase.
SEQUENCE 488 AA, 55278 WW, 6574D5DBF1506171 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Strausberg R.; Submitted (OCT-2001) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                              341 AA; 39532 MW; 1A46340C49F16332 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSMS 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 protein; Acyltransferase; Transferase.
488 AA; 55278 MW; 6574D5DBF15D6171 CRC64;
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                                                                                                                                                                                                                                            DB 10;
                                                                                                                                                                                                                                       62.0%; Score 1717; DB 10; 93.0%; Pred. No. 3.7e-136; iive 10; Mismatches 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     488 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                     Query Match
Best Local Similarity 93.09
Matches 317; Conservative
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Matches 194; Conservative
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TISSUE-Skin;
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                                                                                                                                                                                              SEQUENCE
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Local
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                                                                                                                                                                           Matches
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                                                                                                                                                                                                                                                                     103 GTDVMAVKFTFRPAAPAHRKNKESPLSSDAIFKQSHAGLFNLCIVVLVAVNSRLIIENLM 162
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                                                                                                                                                                                                                1 MAILDSAGVTTVT----ENGGGEFVDLDRLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAP
                                                                                                                                                                                                                                                        57 ADVRDRIDSVVND--DAQGTANLAGDNNGG------GDNNG------GGRGGGE
                                                                                                                                                                                                                                                                                                97 GRGNADATFTYRPSVPAHRRARESPLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLM
                                                                                                                                                                                                                                                                                                                                                   EQYINPIVRNSKHPLKGDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                450 CIAVPCRLEKLWAELGIMFQVPLVFITNYLQERF-GSTVGNMIFWFIFCIFGQPMCVLLY | 1:1|11:1| | 1|1|1|1|1|1|1 | 463 CVAVPCQIFKFWAFSGIMLQVPLVITNYLQEKFKNSMVGNMÆWGFFCIFGQPMCVLLY
                                                                                                                                                                                                                                    MAILDSPEILDTTSSSADNGAAHHTTL--RRRQSARSVPP----LLDSDSNSL-----
                                                                                                                                                                                                                                                                                                                                                                                                                         --ANPEVSYYVSLKSLAYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KYGWLIRTDFWFSSRSLRDWPLFMCCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIII
                                                                                                                                                                                                                                                                                                                                                                               217 TMTEVLYPVYVTLRCDSAFLSGVTLMLLTCIVWLKLVSYAHTSYDIRSLANAADK----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFYKDWWNAKSVGDYWRMWNMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
         Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; lamiids; Lamiales; Lamiaceae; Nepetoideae; Elsholtzleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nicotiana tabacum (Common tobacco).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
                                                                   SEQUENCE FROM N.A.
STRAIN-cv. Okdong;
Hwang S., Hwang Y.;
"Isolation of Perilla frutescens diacylglycerol acyltransferase
                                                                                                                                                                                              50;
                                                                                                                                                                          Length 534;
                                                                                                                                                                                              Indels
                                                                                                                      Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                    8FFC173E06E5BB70 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAY-2000 (TrEMBLrel...13, Created)
01-MAY-2000 (TrEMBLrel...13, Last sequence update)
01-MAR-2003 (TrEMBLrel...23, Last annotation update)
Diacylglycerol acylcoA acyltransferase.
                                                                                                                                                                        Score 1854; DB 10;
Pred. No. 1.9e-147;
49; Mismatches 92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 532 AA
                                                                                                                                EMBL; AF29815; AAG23696.1; -. Acyltransferase. SEQUENCE 534 AA; 61205 MW;
                                                                                                                                                                        Query Match 66.9%;
Best Local Similarity 65.3%;
Matches 359; Conservative 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YHDLMNRKGS
frutescens
                                                NCBI_TaxID=48386;
                                                                                                                                                                                                                                                                                                                                      157
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Q9SEG9
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                                                                                                                                         Schaller H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4 MELPESVEMTITITISGIENLNSDLNHSVRRRR----GSNGFEAASAINSS---DANMSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LRCDSAFLSGVTLMLLTCIVWLKLVSYAHTSYDIRSLANAADK----ANPEVSYYVSLKSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MAILDSAGVTTVTENGGGEFVDLD---RLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             DVRDRIDS-----VVNDDAQGTANLAGDNNGGGDNNGGGRGGGGGGRGNADAT----FTYR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSVPAHRRARESPLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SSRSLRDWPLFMCCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WRMWNMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Brassica napus (Rape).
Bukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
eurosids II; Brassicales; Brassicaceae; Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     466 IMEQVPLVFITNYLQERF-GSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGS
                                                                                                                                                                                                                                                                                                    Length 532;
                                                                                                                                                                                                                                                                                                                                            23;
                                                                                           STRAIN-CV. Xanthi SH6; TISSUE-Callus;
MEDLINE-20069349; PubMed=10601854;
BOUVIG-TANCP P., Benveniste P., Oelkers P., Sturley S.L., Sch
BOUVIG-TANCP P., Benveniste P., Oelkers P., Sturley S.L., Sch
COA:diacylglycerol acyltransferase.";
Eur. J. Biochem. 267:85-96(2000).
EMBL; AF129003; AAF19345.1;
EMBL; AF129003; TARINSferase.
SEQUENCE 532 AA; 60867 MW; C9D316E7A8799310 CRC64;
core eudicots;
                                                                                                                                                                                                                                                                                                                                          104; Indels
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01-MAR-2003 (TTEMBLrel. 23, Last annotation update)
Putative diacylglycerol acyltransferase (EC 2.3.1.20)
                    Solanaceae; Nicotiana
                                                                                                                                                                                                                                                                                                    DB 10;
                                                                                                                                                                                                                                                                                                  Score 1842.5; DB 1
Pred. No. 1.8e-146;
Spermatophyta; Magnoliophyta; eudicotyledons;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Æ
                                                                                                                                                                                                                                                                                                                                        49; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                lamiids; Solanales;
                                                                                                                                                                                                                                                                                                  66.5%;
67.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1999 (TrEMBLrel, 12, 01-NOV-1999 (TrEMBLrel, 12,
                                                                                                                                                                                                                                                                                                                                        358; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
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                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                       NCBI_TaxID=4097;
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54 AENRDQDRVGAMENATGSVNLIG-----NGGGVVIGNEEKQVGETDIRFTYRPSFPAH 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RRARESPLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLR 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWR 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ||: :|: || | :| |: ||: ||: || ||: || ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: |
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57 ADVRDRIDSVVNDDAQGTANLACDNNGGCDNNGGGRGGGEGR--GNADATFTYRPSVPAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JUN-2002 (TrEMBLrel. 21, Created)
01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
101-MAR-2003 (TrEMBLrel. 23, Last annotation update)
11-MAR-2003 (TrEMBLrel. 23, Last annotation update)
12-MAR-2003 (Common nacturtium).
12-MAR-2003 (Treptophyta; Enterpophyta; Enterpophyta; Magnollophyta; endicotyledons; core endicots; Rosidae; eurosids II; Brassicales; Tropaeolaceae; Tropaeolum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MAILDSAGVTTVTENGGGEFVDLDRLRRRSRSD----SSNGLLLSGSDNNSPSDDVGAP
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                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
Mietkiewska E., Pedersen K., Katavic V., Taylor D.C.;
"Characterization of a putative diacylglycerol acyltransferase mRNA
from Tropacolum majus embryo.";
Submitted (MAR-2002) to the EMBL/GenBank/DDBJ databases.
EMBL; AY084052; AAM03340.1;
InterPro; IPR0042999; MBOAT_fam.
InterPro; IPR0020409; MBOAT_fam.
PF033062; MBOAT; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FOVPLVFITNYLOERF-GSTVGNMIFWFIFCIFGOPMCVLLYYHDLMNRK 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   401D36427284CDAA CRC64;
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Q9FUL6;
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-MAR-2003 (TrEMBLrel. 26, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DGAT1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          67.8%; Score 1880; DB 10;
69.8%; Pred. No. 1.2e-149;
tive 44; Mismatches 88;
                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE: PS00267; TACHTKININ; 1.
Transferase; Acyltransferase.
SEQUENCE 518 AA; 58814 MW; 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 Similarity 69.8 370; Conservative
                                                                                                                                                                                          NCBI_TaxID=4020;
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                                                                                                                                                                                                             Brassica napus (Rape).
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
eurosids II; Brassicales; Brassicaee; Brassica.
                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN-cultivar Jet Neuf;
STRAIN-cultivar Jet Neuf;
STRAIN-cultivar Jet Neuf;
MPDLINE-20027448; PubMed-10557255;
Nykiforuk C.L., Laroche A., Weselake R.J.;
Nykiforuk C.L., Laroche A., Weselake R.J.;
Isolation and Characterization of a CDNA Encoding a Second Putative Diacylglycerol Acyltransferase from a Microspore-derived Cell Suspension Culture of Brassica napus L. cv Jet Neuf (Accession No. Plant Physiol. 121:1053-1053(1999).
BABL; AF164434; AAD45536.1; -
Acyltransferase; Transferase.
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                                                                                         01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-NAR-2003 (TrEMBLrel. 23, Last annotation update)
Putative diacylglycerol scyltransferase (EC 2.3.1.20).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83.3%; Score 2309.5; DB 10;
84.8%; Pred. No. 9e-186;
tive 17; Mismatches 43; I
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                                                                   Q9XGR5;
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                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
STRAIN-cv. Commanche;
Brown A.P., Schlerer T.P., Slabas A.R.;
Brown A.P., Schlerer T.D., Slabas A.R.;
Lotaracterization of a putative diacylglycerol acyltransferase cDNA from Brassica napus embryo.";
Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AF251794; AAF64055.1;
ACYLTRANSferase; Transferase.
SEQUENCE 501 AA; 57538 MW; 29E022B278D60822 CRC64;
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%; Pred. No. 2.6e-189;
17; Mismatches 37; Indels
                                                                                                                                                                                                                          01-OCT-2000 (TrEMBLrel. 15, Last sequence update) 01-MAR-2003 (TrEMBLrel. 23, Last annotation update) Putative diacylelycerol acyltransferase (EC 2.3.1.20). Brassica napus (Rape).
                                                                               ERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSMS
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86.0%;
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                                                                                                                      Southwick A., Karlin-Neumann G., Nguyen M., Lam B., Miranda M., Balm C.J., Bowser L., Jones T., Banh J., Carninci P., Chen H., Cheuk R., Chung M.K., Hayashizaki Y., Ishida J., Kamiya A., Kawai Kim C., Lin J., Liu S.X., Narusaka M., Pham P.K., Sakano H., Kim C., Lin T., Satou M., Seki M., Shinn P., Yamada K., Shinozaki K., Ecker J., Theologis A., Davis R.W., Submitted (Aug-2001) to the EMBL/GenBank/DDBJ databases.
MEDLINE-99313150; PubMed-10386579;
Hills M.J., Lu C., Hobbs D.H.;
"Cloning of a cDNA encoding diacylglycerol acyltransferase from
Arabidopdis thaliana and its functional expression.";
FEBS Lett. 452:145-149(1999).
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Sykes S.M., Kaul S., Mason T.M., Kerlavage A.R., Adams M.D.,
Somerville C.R., Venter J.C.;
Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
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Sun Aug 31 15:58:30 2003
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GenCore version 5.1.6

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OM protein - protein search, using sw model

Run on: August 31, 2003, 04:28:05; Search time 72 Seconds

(without alignments)

1863.713 Million cell updates/sec
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Perfect score: Sequence:	2771 2771 1 MAILDSAGVITVIENGGGEFQPMCVLLYYHDLMNRKGSMS 5
Scoring table: BLOSUM62 Gapop 10	BLOSUM62 Gapop 10.0 , Gapext 0.5
Searched:	830525 segs, 258052604 residues
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•	SPTREMBL_23:* 1: sp archea:*	ds	3: sp_fung1:*		5: sp_invertebrate:*	 	8: sp_organelle:*	Ø	 <pre>11: sp_rodent:*</pre>	 <pre>13: sp_vertebrate:*</pre>	<pre>14: sp_unclassified:*</pre>	15: sp_rvirus:*	<pre>16: sp_bacteriap:*</pre>	17: sp_archeap:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Description	Q9s1d2 arabidopsis O9m4v2 brassica na	Obxgr5 brassica na	Verase cropaectum Ogful6 perilla fru		09xqv4 brassica na	Q96bb8 homo sapien	Q8bhi5 rattus norv	Q8sqb0 bos taurus	Q8mk44 bos taurus	Q8mhzl sus scrofa	Q9brh5 homo sapien		٠	Q9ncel caenorhabdi
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F 1	2	Q9SLD2 PRELIMINARY; PRT; 520 AA.	Q9SLD2; Q9S7F2;	01-MAY-2000 (TrEMBLrel. 13, Created)	01-JUN-2002 (TrEMBLrel. 21, Last sequence update)	01-MAR-2003 (TrEMBLrel. 23, Last annotation update)	Diacylglycerol O-acyltransferase (Diacylglycerol	acyltransferase).	AT2G19450 OR DGAT OR DAGAT OR F3P11.5.	Arabidopsis thaliana (Mouse-ear cress).	Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheoph	Spermatophyta; Magnollophyta; eudicotyledons; core eudicots; R	eurosids II; Brassicales; Brassicaceae; Arabidopsis.	NCBI_TaxID=3702;	
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RA Zou J., Well Y., Jako C., Selvaraj G., Taylor D.C.;
RA Zou J., Well Y., Jako C., Selvaraj G., Taylor D.C.;
RT acyltransferase.";
RI Submitted (APR-1999) to the EMBL/GenBank/DDBJ databases.
[3]
RP SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
RP SEQUENCE FROM N.A.
STRAIN=cv. Columbia; TISSUE-Hypocotyl;
RX MEDLINE-200693449; Pubmad=10601854;
RA Bouvier-Nave P., Benveniste P., Oelkers P., Sturley S.L., Schaller H.;
RT "Expression in yeast and tobacco of plant cDNAs encoding acyl
RT COA:diacylglycerol acyltransferase.";
RL SEQUENCE FROM N.A.
RD SEQUENCE FROM N.A.
RD SEQUENCE FROM N.A.

Query Match 10.9%; Score 301; DB 1; Length 610; Best Local Similarity 24.8%; Pred. No. 3.1e-15; Matches 105; Conservative 76; Mismatches 161; Indels 82; Gaps 17;	156 MKYGWL-IRTDFWFSSRSLRDWPLFWCCISLSIFPLAAFTVEKLVLQKYISEPVV 209	210 IFLHIII	250 IKLVSYAHTSYDIRSLANAADKANPEVSYY 279	280VSLKSLÄYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQ-YI 333 1 :	334 NPIVRNSKHPLKGDLLYAIERVLKLSVPNLYV-WICMFYCFFHLWLNILAELL 385 : :	386 CEGDREFYKDWWNAKSVGDYWRWWNWPYHKWMVRHIYFPCLRS-KIPKTLAIIIAFLVSA 444 	445 VEHELCIAVPCRLEKLMAFLGIMFQVPLVFITNYLQERFGSTVGNMIFWFIFCIFGQPMC 504	505 VLLY 508 : 11 604 MTLY 607
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Search completed: August 31, 2003, 04:57:31 Job time: 42 secs

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HAGLFULCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRDWPLFMCCISLSIFPLA
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                                                                                                                                                                                                                                                                                                                                      CHOLESTEROL ABSORPTION. IN ADDITION TO ITS ACYLTRANSFERASE ACTIVITY, IT MAY ACT AS A LIGASE. MAY PROVIDE CHOLESTERYL ESTERS FOR LIPOPROTEIN SECRETION FROM HEPATOCYTES AND INTESTINAL MUCOSA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE SPECIFICITY: LIVER AND INTESTINE. EXPRESSION IS SIX-FOLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Acyltransferase; Transmembrane; Endoplasmic reticulum;
                                                                                                                                                                                                                                                                                                                                                                                                                             CATALYTIC ACTIVITY: Acyl-CoA + cholesterol = CoA + cholesterol
                                                                                                                                                                   Anderson R.A., Joyce C., Davis M., Reagan J.W., Clark M., Shelness G.S., Rudel L.L.;
"Identification of a form of acyl-CoA:cholesterol acyltransferase specific to liver and intestine in nonhuman primates.";
J. Blol. Chem. 273:26477-26754 (1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GREATER IN HEPATOCYTES THAN IN KUPFFER CELLS.
DISEASE: ACCUMULATION OF INSOLUBLE CHOLESTEROL ESTERS IN
MACROPHAGES AND SMOOTH MUSCLE IS A CHARACTERISTIC FEATURE OF
LESIONS OF ATHEROSCLEROTIC PLAQUE.
SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBCELLULAR LOCATION: Integral membrane protein. Endoplasmic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBUNIT: MAY FORM HOMO- OR HETERODIMERS (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       196 POTENTIAL.
60411 MW; FA5E29F48386DB43 CRC64;
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                                                                                                                 TISSUE-Liver;
MEDLINE-98434590; PubMed-9756918;
Cercopithecinae; Cercopithecus.
NCBI_TaxID=9534;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; AF053234; AAC62929.1; -.
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Transferase; Acyltrans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    476
526 AA;
                                                                                    SEQUENCE FROM N.A.
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                                                                                                                                 454 PCRLFKLWAFLGIMFQVPLVF--ITNY-LQERFGSTVGNMIFWFIFCIFGQPMCVLLYYH 510
01-WAY-1992 (Rel. 22, Last sequence update)
LeCCT-2001 (Rel. 40, Last annotation update)
Sterol 0-acyltransferase 1 (CC 2.3.1.26) (Sterol-ester synthase 1).
AREI OR SAT2 OR YCR048W OR YCR48W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Endoplasmic reticulum; Acyltransferase.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 1-328 FROM N.A. Balgnan-Fornier B., Doira C., Bolotin-Fukuhara M., Buller J.-M., Daignan-Fornier B., Doira C., Francingues-Caillard M.-C.; Submitted (MAR-1992) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -1- SUBCELLULAR LOCATION: Integral membrane protein. Endoplasmic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY.
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GO; GO:0004772; F:sterol O-acyltransfersse activity; IDA.
GO; GO:0016125; P:sterol metabolism; IMP.
Ffam: PF03062; MBOAT; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
Grivell L.A., de Haan M., Maat M.J.;
Submitted (MAR-1992) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Fung1; Ascomycota; Saccharomycotina; Saccl
Saccharomycetales; Saccharomycetaceae; Saccharomyces
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417 LGRRARGVAMLGVFLVSAVVHEYIFC ---- FVLGFFYPVMLMLFLVFGGLLNFTMNDRH 471
                                                                                                           SOAZ_HUMAN STANDARD; PRT; 522 AA.
075908; Q9UNR2;
16-0CT-2001 (Rel. 40, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
54E-01 O-acyltransferase 2 (EC 2.3.1.26) (Cholesterol acyltransferase 2 (EC 2.9.1.26) (Cholesterol acyltransferase 5)
3 (Acyl coenzyme A:Cholesterol acyltransferase 5) (ACAT-2).
                                                                                                                                                                                                                                                                                                                                                                                                           Chang C.C.Y., Sakashita N., Ornvold K., Lee O., Chang E.T., Dong R., Lin S., Lee C.-Y.G., Strom S.C., Kashyap R., Fung J.J., Farese R.V. Jr., Patoiseau J.-F., Delhon A., Chang T.-Y.; "Immunological quantitation and localization of ACAT-1 and ACAT-2 in Juman liver and small intestine."; J. Biol. Chem. 275:28083-28092(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHOLESTEROL ABSORPTION. IN ADDITION TO ITS ACYLTRANSFERASE ACTIVITY, IT MAY ACT AS A LIGASE. MAY PROVIDE CHOLESTERYL ESTERS FOR LIPOPROTEIN SECRETION FROM HEPATOCYTES AND INTESTINAL MUCOSA. CATALYTIC ACTIVITY: ACYL-COA + cholesterol - COA + cholesterol
                                                                                                                                                                                                                               Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi;
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBCELLULAR LOCATION: Integral membrane protein. Endoplasmic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY
                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
MEDLINE-98434592; PubMed-9756920;
Oelkers P., Behari A., Cromley D., Billheimer J.T., Sturley
"Characterization of two human genes encoding acyl coenzyme
A:cholesterol acyltransferase-related enzymes.";
J. Blol. Chem. 273:26765-26771(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: MAY FORM HOMO- OR HETERODIMERS (BY SIMILARITY)
                         484 GSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRK 516
                                          472 TGPAWNILMW-TFLFMGQGIQVSLYCQEWYARR 503
                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-Intestine; MEDLINE-20428724; PubMed-10846185;
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1; JOINED.
1; JOINED.
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AAK18275.1;
                                                                                                                                                                                                                 Homo saptens (Human)
                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                     NCBI_TaxID-9606;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245 -----TCIVWLKLVSYAHTSYD-IRSLANAADKAN-----PEVSYYVSLKSLAYFM 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            222 HOLPPASRCVLVFEQVRFLMKSYSFLREAVPGTLRARRGEGIQAPSFSSYL-----YFL 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    290 VAPILCYOPSYPRSACIRKGWVAROFAKLVIFIGFMGFIIEQYINPIVRN-SKHPLKGDL 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LYAIERVIKISVPNIYVWICMFYCFFHLMINILAELICFGDREFYKDWMNAKSVGDYWRM 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WNMPVHKWMVRHIYFPCLR--SKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGI 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last sequence update)
Sterol O-acyltransferase 2 (EC 2.3.1.26) (Cholesterol acyltransferase
2) (Acyl coenzyme A:cholesterol acyltransferase 2) SOAT2 OR ACAT2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    192 AFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                      ou; ou:uu08415; F:acyltransferase activity; TAS.
GO: GO:0008203; P:cholesterol metabolism; TAS.
Pfam; PF03062; MBOAT; 1.
Transferase; Acyltransferase; Transmembrane; Endoplasmic reticulum; Cholesterol metabolism.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cercopithecus aethiops (Green monkey) (Grivet).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MFQVPLVF -- ITNYL -- OERFGSTVGNMIFWFIFCIFGQPMCVLLYYHDLMNRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1; Length 522;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                              -> I (IN REF. 2).
EEAC2DB569FFE729 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66; Mismatches 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 357.5; DB 1
Pred. No. 1.5e-19;
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                                  EMBL; AF331512; AXI8275.1; J
EMBL; AF331513; AAK18275.1; J
EMBL; AF331514; AAK18275.1; J
EMBL; AF331515; AAK18275.1; J
Genew; HGNC:11178; SOAT2.
MIM; 601311; -.
                                                                                                                                                                                                                                                                                                                                                                                                                59896 MW;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 88;
AAK18275.1;
AAK18275.1;
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077759;
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DMSFEHRPSILDGSVNEPFKTKFVGPTLEKEIRRREKELMAMRKNLHHRKSSPDAVDSVG 184
                                                                                                                                                                                                                                                                                                                                                                                                                               129 KQSHAGLFNLCVV-----VLIAVNSRLIIEN----LMKYGWL------IRTDFWFS-SRS 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       294
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LLYAIERVLKL-----SVPNLYV-WLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAK 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SVGDYWRMWNMPVHKWMVRHIYFPCLRS-KIPKTLAIIIAFLVSAVFHELCIAVPCRLFK 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       295 CYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYI-NPI-----VRNSKHPLKGD 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         419 IYQIEYPRTKEIRWSYVLEKIC-AIFGTIFLMMIDAQILMYPVAMRALAVRNS-----E 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                      185 KNDGAAPTTVPTAATSETVVTVETTIISSNFSGLYVAFWMAIAFGAVKALIDYYYQHNGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                245 FKDSEI-----LKFMTTNLFTVASVDLLMYLSTYFVVGIQYLCKWGVLKWGTTGWIFTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              218 MTEVLYPVYVTLRCDSA----FLSGVTLMLLTCIVWLKLVSYA--------HTSYDI
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16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
17-OCT-2001 (Rel. 40, Last annotation update)
18-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                               135; Gaps
                                                     reticulum; Acyltransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Mus.
INCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                               642;
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                                                                                                                                                                                                                                                                                           13.7%; Score 378.5; DB 1; Length 25.2%; Pred. No. 5.1e-21;
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   O-acyltransferase activity; IDA
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G -> D (IN REF. 3).
G -> E (IN REF. 3).
F -> S (IN REF. 3).
F -> S (IN REF. 3).
W, 035FC4ED9C7CD830 CRC64;
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                                                                                                                                                                                                                                                                                                                                                               ; Pred. No. 5.1e-21;
83; Mismatches 176;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     525 AA
                   metabolism; IMP
                                                     Endoplasmic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     263 RSLANAADKAN-PEV-----
                                                                                                                                                                                                                                                             74022 MW;
                                                                                                                                                                                                                                                                                          Query Match 13.79
Best Local Similarity 25.29
Matches 133; Conservative
GO:0004772; F:sterol
GO:0016125; P:sterol
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                                   Pfam; PF03062; MBOAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus musculus (Mouse)
                                                                                                                                                                                                                                                           642 AA;
                                                                                   292
4442
4442
485
567
622
80
                                                   Transferase;
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This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                261
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              112 PAHRR----ARESPLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWF
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    369 MFYCFFHLWLNILAELLCFGDREFYRDWWNAKSVGDYWRWWNPVHKWWVRHIYFP--CL
                                                                                                                      Its
                                                                                                                                        cloning, expression, and characterization.";
J. Biol. Chem. 273:26755-26764(1998).
-!- FUNCTION: PLAYS A ROLE IN LIPOPROTEIN ASSEMBLY AND DIETARY
CHOLESTEROL ABSORPTION. IN ADDITION TO ITS ACYLTRANSFERASE
ACTIVITY, IT MAY ACT AS A LIGASE. MAY PROVIDE CHOLESTERYL ESTERS
FOR LIPOPROTEIN SECRETION FROM HEPATOCYTES AND INTESTINAL MUCOSA.
-!- CATALYTIC ACTIVITY: Acyl-Coa + cholesterol = Coa + cholesterol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Transferase; Acyltransferase; Transmembrane; Endoplasmic reticulum;
                                                                                    Farese R.V. Jr.;
"ACAT-2, a second mammalian acyl-CoA.cholesterol acyltransferase.
                                                         B.R., Erickson S.K.,
                                                                                                                                                                                                                                                                                                                                                                                  SUBUNIT: MAY FORM HOMO- OR HETERODIMERS (BY SIMILARITY). SUBCELLULAR LOCATION: Integral membrane protein. Endoplasmic
                              ω.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   94;
                              Lear S.R., Sande
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13.5%; Score 375; DB 1; 27.4%; Pred. No. 7.4e-21;
                        Cases S., Novak S., Zheng Y.-W., Myers H.M., Welch C.B., Lusis A.J., Spencer T.A., Krause
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 7.46; Mismatches
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MEDLINE-98434591; PubMed-9756919;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60823 MW;
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Pfam; PF03062; MBOAT;
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PILCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSK-HPLKGDLLY
                                                      299 PILIYRDSYPRTPIVRWGYVAMQFLQVFGCLFYVYYIFERLCAPLFRNIKQEPFSA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
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P53629; Q12673;
01-OCT-1996 (Rel
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LSFFYPVLFVLFWFFGMAEN----FIVNDSRKK---PIWNVLMWTSLFLGNGVLLCFYSQ 520
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                                                                                                                                                        16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Sterol O-acyltransferase 1 (EC 2.3.1.26) (Cholesterol acyltransferase
10 (Acyl coenzyme A:cholesterol acyltransferase 1) (AcAT-1).
SOATI OR ACACT OR ACAT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ||:| :| :| :| | ... | :| 1... | ... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... | 1... |
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-9823432; PubMed-5555010;
Matsuda H., Hakamata H., Kawasaki T., Sakashita N., Miyazaki A., Takahashi K., Shichiti M., Horiuchi S.,
"Molecular cloning, functional expression and tissue distribution of rat acyl-coenzyme A.cholesterol acyltransferase.";
Blochim. Blophys. Acta 1301:193-203(1998).
-!- FUNCTION: CATALYZES THE FORMATION OF FATTY ACID-CHOLESTEROL ESTERS. PLAYS A ROLE IN LIPOPROTEIN ASSEMBLY AND DIETARY CHOLESTEROL ABSORPTION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transferase; Acyltransferase; Transmembrane; Endoplasmic reticulum;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- CATALYTIC ACTIVITY: Acyl-CoA + cholesterol - CoA + cholesterol
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                                                                                                                545 AA
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Matches 132; Conserv
                                                                                                                                                                                                                                                                                                   Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=10116;
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468
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070536;
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the European Bioinformatics Institute. There are no restrictions on its
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modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@lsb-sib.ch).
                                                                               411
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                                                                                                                                                               406 WRMWNMPVHKWMVRHIYFPCL--RSKIPKTLAIIIAFLVSAVFHELCIAVPCR----L
AIERVLKLSV----PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDY
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Yu C., Kennedy N.J., Chang C.C.Y., Rothblatt J.A.;
"Molecular cloning and characterization of two isoforms of Saccharomyces cerevisiae acyl-COA-sterol acyltransferase.";
J. Biol. Chem. 271:24157-24163(1966).
-i- FUNCTION: ENSURES PROBABLY MOST OF THE ACYLTRANSFERASE ACTIVITY.
SUPPRESSION OF ARE2 REDUCES STEROL ESTER LEVELS TO 25% OF THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Sterol O-acyltransferase 2 (RC 33.1.26) (Sterol-ester synthase 2).
ARE2 OR SATI ON YNRO19W OR N3206.
Saccharomyces cerevisiae (Baker's yeast).
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                                                                                                                                                                                                                                                                                                                                                                         458 FKLWAFLGIMFQVPLVFITNYLQERFGSTVGNMI-----FWFIFCIFGQ 501
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Fung1; Ascomycota; Saccharomycotina; Saccharomycetes;
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Aljhovic G., Pohl T.M., Rothstein R., Sturley S.L.;
"Sterol exterification in yeast: a two-gene process.";
Science 272:1353-1356(1996).
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EMBL; U55383; AA649441.1; -.
EMBL; U55385; SA649441.1; -.
SGD; S0005302; ARE2.
GO; GO:0005783; C:endoplasmic reticulum; IDA.
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PIR; A59038; A48026.
Genew; HGNC:11177; SOAT1.
MIM; 102642; -
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Matches 144;
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       AQGTANLAGDNNGGGDNNGGGRGGGEGRGNADATFTYRPSVPAHRRARESPLSSDAIFKQ 130
                            -QGKIFI-----ARRSLLDELLEVDHIRTI 141
                                                131 SHAGLFNLCVVVLIAV-----NSRLIIE-NLMKYGW-LIRTDFWFSSRSLRDWPLFMCC 182
                                                                                         183 ISLSIFPLAAFTVEKLVLQKYI-----SEPVV--IFLHIIITMTEV----LYPVYVTLR 230
                                                                                                                                  231 CDSAFLSGVTLMLLTCIVWLKLVSYAHT---SYDIRSLANAADKAN----PEVSYYVSLK 283
                                                                                                                                                                              342
                                                                                                                                                                                                  355
                                                                                                                                                                                                                                                             NAKSVGDYWRMWNMPVHKWMVRHIY--FPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPC 455
                                                                                                                                                                                                                                                                          R-----LFKLWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFW------FIFCIFGQ 501
                                                                                                                                                                                                                                                                                                                   343 PLKGDLLYAIERVLKLSV----PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWW 397
                                                                                                                                                                                                                                 ||: |||| |: ||||: :| |:|| |||| ||:
---YFLFAPTLIYRDSYPRNPTVRWGYVAMQFAQVFGCFFYVYYIFERLCAPLFRNIKQE
                                                                    142 YHMFIALLILFILSTLVVDYIDEGRLVLEFSLLSYAFGKFPTVVW-----TWWIMF---
                                                                                                                                                                            284 SLAYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSK-H
                                                                                                                                                 30-MAY-2000 (Rel. 39, Last sequence update)
16-CCT-2001 (Rel. 40, Last annotation update)
Sterol O-acyltransferase 1 (EC 2.3.1.26) (Cholesterol acyltransferase
11) (Acyl coenzyme A cholesterol acyltransferase 1) (Acyl coenzyme A cholesterol acyltransferase 1) (ACAT-1).
SOATI OR SOAT OR STAT OR ACACTI OR ACACT OR ACATI OR ACAT.
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MEDLINE-94012607; PubMed-8407899;
Chang C.C.Y., Huh H.Y. Cadigan K.M., Chang T.-Y.;
"Molecular cloning and functional expression of human acyl-coenzyme A:cholesterol acyltransferase cDNA in mutant Chinese hamster ovary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chang C.C.Y., Chang T.-Y.;
Submitted (MAY-1999) to the SWISS-PROT data bank.
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P35610;
01-JUN-1994 (Rel. 29, Created)
30-MAY-2000 (Rel. 39, Last sequente-corp-2001 (Rel. 40, Last annotation)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens (Human).
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This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the ENBL outstation the European Bioinformatics. Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      199 ---YFLFAPTLIYRDSYPRNPIVRWGYVAMKFAQVFGCFFYVYYIFERLCAPLFRNIKQE 355
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transferase; Acyltransferase; Transmembrane; Endoplasmic reticulum; Cholesterol metabolism.
SUBUNIT: MAY FORM HOMO- OR HETERODIMERS. SUBCELLULAR LOCATION: Integral membrane protein. Endoplasmic
                                                                                                    -1- INDUCTION: HIGHLY ACTIVATED BY THE PRESENCE OF CHOLESTEROL.
-1- DISEARS: ACCUMULATION OF INSOLUBLE CHOLESTEROL ESTERS IN MACROPHAGES AND SMOOTH MUSCLE IS A CHARACTERISTIC FEATURE OF EARLY LESIONS OF ATHEROSCLEROTIC PLAQUE.
                                                                                                                                                                                                                                                         -1- SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75; Mismatches 177; Indels 144;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5C6AFE525D541DEE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MIM; 102642; -. 669. C:endoplasmic reticulum; TAS. 60; 60:0005783; C:endoplasmic reticulum; TAS. 60; 60:00084015; F:acyltransferase activity; TAS. 60; 60:0008203; P:cholesterol metabolism; TAS. Pfam; PF03062; MBOAT; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14.3%; Score 397; DB 1; 26.7%; Pred. No. 1.7e-22;
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                                                                                                                                                                           468 LSFFYPVLFVLFWFFGMAFN----FIVNDSRKK---PIWNVMMTSLFLGNGVLLCFYSQ 520
                                                                        356 PFSA-----RVLVLCVFNSILPGVLILFLTFFAFLHCWLNAFAEMLRFGDRMFYKDWW 408
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                                             398 NAKSVGDYWRMWNMPVHKWMVRHIY--FPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPC
                                                                                                                                    456 R-----LFKLWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFW------FIFCIFGQ
                                                                                                                                                                                                                                                                                                                    16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
5ferol O-acyltransferase 1 (EC 2.3.1.26) (Cholesterol acyltransferase
1) (Acyl Coenzyme A:cholesterol acyltransferase 1) (Acyl Coenzyme A:cholesterol acyltransferase 2)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRONGLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Transferase; Acyltransferase; Transmembrane; Endoplasmic reticulum;
Cholesterol metabolism.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- TISSUE SPECIFICITY: EXPRESSED IN MOST TISSUES, BUT MOST STRONGI IN THE ADRENAL GLAND. EXPRESSED MORE STRONGLY IN LIVER KUPFFER CELLS THAN IN HEPATOCYTES.
-!- SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CATALYTIC ACTIVITY: Acyl-CoA + cholesterol = CoA + cholesterol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Identification of a form of acyl-CoA:cholesterol acyltransferase specific to liver and intestine in nonhuman primates.";
J. Biol. Chem. 273:26747-26754(1998).
-!- FUNCTION: CATALYZES THE FORMATION OF FATTY ACID-CHOLESTEROL ESTERS. PLAYS A ROLE IN LIPOPROTEIN ASSEMBLY AND DIETARY CHOLESTEROL ABSORPTION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ester.
SUBCELLULAR LOCATION: Integral membrane protein. Endoplasmic
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26.5%; Pred. No. 7.3e.23;
ive 76; Mismatches 177; Indels 144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cercopithecus aethlops (Green monkey) (Grivet).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70 GSHFDDFVTNLIEKSASLDNGGCALTTFSILEGEKNNHRAKDLRAPPE-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-Adrenal gland;
MEDLINE-98434590; PubMed-9756918;
Anderson R.A., Joyce C., Davis M., Reagan J.W., Clark M.,
Shelness G.S., Rudel L.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3B5E4CF8DB6CC713 CRC64;
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382 PO
490 PO
518 PO
64727 MW;
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                                                                                                                                                                                                                                                                                                    STANDARD;
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077760;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        183 ISLSIFPLAAFTVEKLVLQKYI----SEPVV--IFLHIIITMTEV----LYPVYVTLR 230
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----ARRSLLDELLEVDHIRTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----LSTFSVPYFLFQRWATGYSKSSHPLINSLFHGFLFMVFQIGILGFGPTYVVL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 231 CDSAFLSGVTLMLLTCIVWLKLVSYAHT---SYDIRSLANAADKAN----PEVSYYVSLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             245 ---AYTLPPASRFIIIFEQIRFVMKAHSFVRENVPRVLNSAKEKSSTVPIPTVNQYL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           284 SLAYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSK-H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    343 PLKGDLLYAIERVLKLSV----PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWW
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                                                                                                                                                                                                                                                                                                                                                                                                                               -!- TISSUE SPECIFICITY: EXPRESSED IN MOST TISSUES, BUT MOST STRONGI IN THE ADRENAL GLAND. EXPRESSED MORE STRONGLY IN LIVER KUPFFER CELLS THAN IN HEPATOCYTES.
-!- SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY.
                                                                                                                                                                             "Identification of a form of acyl-coA:cholesterol acyltransferase specific to liver and intestine in nonhuman primates.";
J. Biol. Chem. 273:36747-26754(1998).
-!- FUNCTION: PLAYS A ROLE IN LIPOPROTEIN ASSEMBLY AND DIETARY CHOLESTEROL ABSORPTION. IN ADDITION TO ITS ACYLTRANSFERASE ACTIVITY, IT MAY ACT AS A LIGASE (BY SIMILARITY).
-!- CATALYITY ACYLTY ACYL-COA + cholesterol = COA + cholesterol
                                                                                                                                                                                                                                                                                                                                                                -1- SUBGNIT: MAY FORM HOMO- OR HETERODIMERS (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            76; Mismatches 176; Indels 144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 550;
                                                                                      TISSUE-Adrenal gland;
MEDILINE-9843450; Pubmed-9756918;
Anderson R.A., Joyce C., Davis M., Reagan J.W., Clark M.,
Shelness G.S., Rudel L.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
AA655206D58C291D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 406; DB 1;
Pred. No. 3.7e-23;
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Pfam; PF03062; MBOAT; 1.
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Cercopithecinae; Macaca
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SUBCELLULAR LOCATION: Integral membrane protein. Endoplasmic

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Sterol O-acyltransferase I (EC 2.3.1.26) (Cholesterol acyltransferase
1) (Acyl coenzyme A:cholesterol acyltransferase I) (ACAT-1).
                                                                                                                                                                                                                                                                                                                                        GVTLMLLTCIVWLKLVSYAHT -- SYDIRSLANAADKAN-----PEVSYYVSLKSLAYFMV
                                                                                                                                                                                                                                                                                                                                                        PPASRFILILEQIRLIMKAHSFVRENIPRVLNAAKEKSSKDPLPTVNQYL-----YFLF
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                                                                                                                                                                     GNADATFTYRPSVPAHRRA------RESPLSSDAIFKOSHAG-----
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                                                                                                                                                                                                                                                     LILFVLSTIVVDYIDEGRLVLEFNLLAYAFGKFPTVIW-----TWWAMFLSTLSIPYF-
                                                                                                                                                                                                                                                                                 LAAFTVEKLVLQKYI-----SEPVVIFL-HIIITMTEVL----YPVYVTLRCDSAFLS
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MEDLINE-96278939; PubMed-8662991;
Gao G., Goldstein J.L., Brown M.S.;
"Complementation of mutation in acyl-CoA:cholesterol acyltransferase (ACAT) fails to restore sterol regulation in ACAT-defective sterol-resistant hamster cells.";
-1. FUNCTION: CATALYZES THE FORMATION OF FATTY ACID-CHOLESTEROL ESTERS. PLAYS A ROLE IN LIPOPROTEIN ASSEMBLY AND DIETARY CHOLESTEROL ABSORPTION.
-1. CATALYTIC ACTIVITY: Acyl-CoA + cholesterol = CoA + cholesterol
                                                                                                                                            Gaps
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                         Indels 113;
                                                                                                                Length 540;
                                                                    -> R (IN REF. 2).
BEF900C8BCDF73C0 CRC64;
                                                                                                            DB 1;
                                                                                                             ; Score 415.5; DB 1;
; Pred. No. 6.9e-24;
76; Mismatches 149;
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28.5%;
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                                                                                                                                         Conservative
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152
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460
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Q60457;
16-OCT-2001
16-OCT-2001
                                                                                                                                       Matches 135;
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                                                                                                             Query Match
                                                                    CONFLICT
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16-0CT-2001 (Rel. 40, Last sequence update)
16-0CT-2001 (Rel. 40, Last annotation update)
16-0CT-2001 (Rel. 40, Last annotation update)
Sterol O-acyltransferase I (EC 2.1.26) (Cholesterol acyltransferase
1) (Acyl coenzyme A:cholesterol acyltransferase I) (ACAT-1).
SOATI OR ACAT.
Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LCVVVLIAVN----SRLIIE-NLMKYGW-LIRTDFWFSSRSLRDWPLFMCCISLSIFPLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  192 AFTVEKLVLORY ----- ISEPVVIFL --- HIIITMTEVL -- YPVYVTLRCDSAFLSGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240 TLMLLTCIVWLKLVSYAHT--SYDIRSLANAADKAN-----PEVSYYVSLKSLAYFMVAP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  352 IERVLKLSV-----PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYW
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        516
                                                                                                                                                                                                                                                                                                                                                                                              109;
                             SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY
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                                                                                                                                                                                                                                                                                                                                                               14.9%; Score 412.5; DB 1; 28.2%; Pred. No. 1.2e-23; tive 78; Mismatches 151;
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                                                                                                                                                                                                                                                                                                                                                                                              133; Conservative
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486
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Best Local 3
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
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                                                                                                                                                     -1- SUBCELLULAR LOCATION: Integral membrane protein. Endoplasmic
                                                                                                                                                                                                                                                                                                                                 reticulum (By similarity).
-i- SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          71;
el. 41, Last annotation update)
O-acyltransferase 1 (EC 2.3.1.20) (Diglyceride
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5B24DD4AEB87CB4D CRC64;
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Matches 192; Conservative
                                                        Rattus norvegicus (Rat).
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498 AA;
                                                                                                                                SEQUENCE FROM N.A.
                               acyltransferase).
                                                                                                    NCBI_TaxID-10116;
              Diacylglycerol
                                            OR DGAT
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Best Local
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351 A--IERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRM 408
                                                                                                                                                                                          328 SRIIERLLKLAVPNHLIWLIFFYWLFHSCLNAVAELLQFGDREFYRDWHNAESVTYFWQN 387
                                                                                                                                                                                                                                                                                                                                       409 WNMPVHKWMVRHIYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMF 468
                                                                                                                                                                                                                                                                                                                                                                                              "Tissue-specific expression and cholesterol regulation of acylcoenzyme A:cholesterol acyltransferase (ACAT) in mice. Molecular cloning of mouse ACAT cDNA, chromosomal localization, and regulation of ACAT in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOAL_MOUSE STANDARD; PRT; 540 AA. 06125, 064180; 1640-2.2001 (Rel. 40, Created) 16-0CT-2001 (Rel. 40, Last sequence update) 16-0CT-2001 (Rel. 40, Last annotation update) 16-0CT-2011 (Rel. 40, Last annotation update) 17-0CT-2011 (Rel. 40, Last annotation update) 17-0CT-2011 (Rel. 40, Last annotation update) (Rel. 40, Last annotation update) 17-0CT-2011 (Rel. 40, Last annotation update) 17-0CT-2011 (Rel. 40, Last annotation update) 18-0CT-2011 (Rel. 40, Last annotation update) 18
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"Cloning and expression in Xenopus oocytes of a mouse homologue of thuman acylcoenzyme A: cholesterol acyltransferase and its potential role in metabolism of oxidized LDL.";
Blochem. Biophys. Res. Commun. 218:924-929(1996).
-!- FUNCTION: CAPALYZES THE FORMATION OF FATTY ACID-CHOLESTEROL ESTERS. PLAYS A ROLE IN LIPOPROTEIN ASSEMBLY AND DIETARY CHOLESTEROL ABSORPTION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transferase; Actitransferase; Transmembrane; Endoplasmic reticulum; Cholesterol metabolism.
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
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MGD; MGI:104665; Soat1.
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SOA1_MOUSE
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A Rawal J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y., A Arakawa T., Hara A., Shibata K., Yoshino M., Itoh M., Ishii Y., A Arakawa T., Hara A., Shibata K., Konno H., Adachi J., Fukuda S., Aalawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I., Saito T., Okazaki Y., Gojobori T., Bono H., Rasukawa T., Saito R., Adota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T., Alleschmann W., Gasterland T., Gissi C., King B., Kochiwa H., Ruchl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J., Schriml L.M., Staubi F., Suzuki R., Tomita M., Wagner L., Washio T., Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G., Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F., Ashincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H., Lyonos P., Marchioni L., Mashima J., Mazzacelli J., Mombaerts P., Lyons P., Marchioni L., Mashima J., Mazzacelli J., Mombaerts P., Ayons P., Ringwald M., Rodriguez I., Sakamoto N., Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F., Suzuki H., Toyo-Oka K., Wang K.H., Weltz C., Whittaker C., Wilming L., Mayashizaki Y.;

"Purctional annotestion of a full-length mouse cDNA collection.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NEDLINE-22388257; PubMed-12477932;

NEDLINE-22388257; PubMed-12477932;

Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,

Alusner R.D., Collins F.S., Wagner L., Shemenc C.R., Schuler G.D.,

Altschul S.F., Zeeberg B., Buetow K.H., Scheefer C.F., Bhat N.K.,

Altschul S.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,

Batchenco L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,

Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,

Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,

Raha S.A., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,

Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gubzs R.A.,

Richards S., Worley K.C., Hale S., Garcia A.M., Galbs R.A.,

Villalon D.K., Muny D.M., Sodergren E.J., Lu X., Gibbs R.A.,

Rahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,

Mylting M., Madan A., Young A.C., Sheychenko Y., Bouffard G.G.,

Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,

Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,

Rodriguez A.C., Grimwood J., Schmutz J., Marra M.A.,

Reneration and initial analysis of more than 15,000 full-length

Pumman and mouse cDNA sequences: "...
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PATHWAY: Central role in the metabolism of cellular diacylglycerol
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                                                                                                                                                                                                                                            S., Smith S.J., Zheng Y.-W., Myers H.M., Lear S.R., Sande E., S., Collins C., Welch C.B., Lusis A.J., Erickson S.K.,
                                        Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
NCBI_TaxID=10090;
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-1- FUNCTION: Catalyzes the terminal and only committed step in triacylglycerol synthesis by using diacylglycerol and fatty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      reticulum.
SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY.
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                                                                                                                                                                                                                                                                                       Farese R.V. Jr.;
"Identification of a gene encoding an acyl Cohidiacylglycerol acyltransferase, a key enzyme in triacylglycerol synthesis.";
Proc. Natl. Acad. Sci. U.S.A. 95:13018-13023(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-C57BL/63; TISSUE-Tongue;
MEDLINE-21085660; PubMed-11217851;
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MEDLINE-99007259; PubMed-9789033;
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acyltransferase).
DGAT1 OR DGAT.
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                                                                                                                                                                                                                                                                                                                                                                                                         15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   149 SNIFVVAAFQIEKRLAVGALTEOMGLLLHVVNLATIICFPAAVALLVESITPVGSVFALA 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   245 T-CIVWLKLVSYAHTSY-----DIRSLANAADK-----ANPEVSY--YVSLKSLAYFMV 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   408
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            68 NDDAQGTANLAGDNNGGGDNNGGGRGGEGRGNADATFTYRPSVPAHRRARESPLSSDAI 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185 LSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLL 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           291 APTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLY 350
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SYSIMFLKLYSYRDVNLWCRQRRVKARAVSTGKKVSGAAAQQAVSYPDNLTYRDLYYFIF
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63 ------HRLQDSLFSSSDSG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   128 FRQSHAGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRD---WPLFMCCIS
                                                                                                                                                                                                     Acyltransferase; Transmembrane; Endoplasmic reticulum.
                                                                                                                                                                                                                                                                                                                                                                             DB 1; Length 498;
                                                                                                                                                                                                                                                                                                                                                                           QVPLVFITNYLQERFGSTVGNMIFWFIFCIFGQPMCVLLYYHD 511
                                                                                                                                                                                                                                                                                                                                                E7B0DD6DDCF1EC2B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                O9ERM3;
16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
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POTENTIAL.
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BC003717; AAH03717.1; -.
                                                                                                                             EMBL; AF078752; AAC72917.1; -.
                                                                                                                                                                                                                                                                                                                                                56790 MW;
                                                                                                                                                                                                                                                                                                                                                                                                        190; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                      MGD; MGI:1333825; Dgat1
Pfam; PF03062; MBOAT; 1
                                                                                                                                                                                                                                                                                                                                               498 AA;
                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                     Transferase;
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SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY

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17;
                                                                                                                                                                                                                           QKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLI-CIVWLKLVSYAHTS 259
                                                                                                                                                                                                                                                                                                212
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                                                                                                                                                                                                                                                                                                                                          FPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLV-FITNYLQE 481
                                                                                                83
                                                                                                                                                                                  96
                                                                                                                            RRRRIGSRPSSHGG------GGPAAAEEE----VRDAAAGPDVGAAGDAPA 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -1- PATHWAY: Central role in the metabolism of cellular diacylqlycerol
                                                                                                RLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVRDRIDSVVNDDAQG-TANLAGDNNG
                                                                                                                                                                        PAPNKDGDAGVGSGHWELRC------HRLQDSLFSSDSGF-SNYRGILNWCVVWL
                                                                                                                                                                                                              IAVNSRLIIENLMKYGWLIRTDFWFSSRSLRD---WPLFMCCISLSIFPLAAFTVEKLVL
                                                                                                                                                                                                                                                                                              VGALTEQAGLILHVANLATILCFPAAVVLLVESITPVGSLLALMAHTILFIKLFSYR---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGDNNGGGRGGGGGRGNADATFTYRPSVPAHRRARESPLSSDAIFKQSHAGLFNLCVVVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        triacylglycerol synthesis by using diacylglycerol and fatty acyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalla, Eutheria, Primates, Catarrhini, Cercopithecidae,
Cercopithecinae, Cercopithecus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBCELLULAR LOCATION: Integral membrane protein. Endoplasmic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           step in
                                                                      65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Diacylglycerol O-acyltransferase 1 (EC 2.3.1.20) (Diglyceride
                                          Length 488;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COA as substrates.
CATALYTIC ACTIVITY: Acyl-COA + 1,2-diacylglycerol = COA
                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Anderson R.A., Rudel L.L.;
the EMBL/GenBank/DDBJ databases.
the terminal and only committed
  POTENTIAL.
12E34BA7478ABA1F CRC64;
                                    28.6%; Score /yı.ə,
38.0%; Pred. No. 3.7e-52;
+ive 77; Mismatches 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cercopithecus aethiops (Green monkey) (Grivet)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  491 AA
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 473 F
                                                                    194; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Joyce C.W., Davis M.A.,
Submitted (FEB-2000) to
-1- FUNCTION: Catalyzes
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453
488 AA;
                                                      Similarity
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 TRANSMEM
SEQUENCE
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reticulum (By similarity)

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLV-FITNYLQERFGST 486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  399 RGSSRWMARIGVFLASAFFHEYLVSVPLRMFRLWAFTGWMAQIPLAWFVGRFFGGNY--- 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                310 WVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYA--IERVLKLSVPNLYVWL 367
                                                                                                                                                                                                                                                                                                                                                                                                         84
                                          and the EMBL outstation
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FLLRRILEMLFFTQLQVGLIQQWMVPTIQNSMKPFK-DMDYSRIIERLLKLAVPNHLIWL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               202 KYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLT-CIVWLKLVSYAHTSY
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                                                                                                                                                                                                                                                                                                                                                                                                                                   RRRRTGSRPSSHGG-----DMGAAEEE----VRDAAAGP----DMGAA
                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                        Transmembrane; Endoplasmic reticulum
                                                                                                                                                                                                                                                                                                                                                                             55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DGTI_MOUSE STANDARD; PRT; 498 AA.
0922A7; 09D705;
16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
Diacylglycerol O-acyltransferase 1 (EC 2.3.1.20) (Diglyceride
                                                                                                                                                                                                                                                                                                                                                 Length 491;
                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                     BFD3683453D588DB CRC64;
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                                                                                                                                                                                                                                                                                                                                                                     80; Mismatches 179;
                                        the Swiss Institute of Bioinformatics
                                                                                                                                                                                                                                                                                                                                                 Score 772.5; DB
Pred. No. 9.9e-51
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nes 191; Conservative
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Sun Aug 31 15:58:29 2003
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OM protein - protein search, using sw model

August 31, 2003, 00:46:55; Search time 38 Seconds (without alignments) 643.523 Million cell updates/sec Run on:

Title: Perfect score: Sequence:

US-09-623-514A-2
2771
1 MAILDSAGVTTVTENGGGEF.....QPMCVLLYYHDLMNRKGSMS 520

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

127863 seqs, 47026705 residues Searched:

127863 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt\_41:\* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	O75907 homo sapien	cercc	_	Q9erm3 rattus norv	_	Q60457 cricetulus	077761 macaca fasc	077760 cercopithec			P53629 saccharomyc	O88908 mus musculu		077759 cercopithec		Q10269 schizosacch	Q09758 schizosacch	P53154 saccharomyc	P05510 neurospora	Q9h2s1 homo sapien		_	P39580 bacillus su	P28569 saccharomyc	P09026 mus musculu	P31391 homo sapien	sacch	P44543 haemophilus	_	Q9ul62 homo sapien	062852 oryctolagus	Q9qx29 mus musculu	P25129 bacteriopha
SUMMARIES	. A		DGT1_CERAE	DGT1_MOUSE	DGT1_RAT	SOA1_MOUSE	SOA1_CRIGR	SOA1_MACFA	SOA1_CERAE	SOA1_HUMAN	SOA1_RAT	ARE2_YEAST	SOA2_MOUSE	SOA2_HUMAN	SOA2_CERAE	ARE1_YEAST	AREH_SCHPO	YA71_SCHPO	YGI4_YEAST	NUSM_NEUCR	KCN2_HUMAN	TRK1_YEAST	NU5M_PODAN	DLTB_BACSU	TRK1_SACBA	HXB3_MOUSE	SSR4_HUMAN	YKR4_YEAST	Y147_HAEIN	KCN2_MOUSE	TRP5_HUMAN	TRP5_RABIT	TRP5_MOUSE	COAA_BPPF1
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	Score	791.5	772.5	771.5	762.5	415.5	412.5	406	402	397	391.5	378.5	375	357.5	350.5	301	277.5	135	129	122	120	120	115	113	112	110	109.5	109	107	106.5	106	106	106	105.5
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rattus norv	schizosacch	drosophila	mesocricetu	ascaris suu	saccharomyc	homo sapien	arabidopsis	saccharomyc	homo sapien	chlamydia t
P70604	010254	09vvx3	009029	P24881	P38724	P46094	P92953	P40351	Q9h255	046378
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KCN2_RAT	YD26_SCHPO	FRZ2_DROME	BET3_MESAU	COX1_ASCSU	YHE7_YEAST	CXC1_HUMAN	ATH4_ARATH	ALG8_YEAST	OXE2_HUMAN	MVIN_CHLTR
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580	445	694	367	525	637	333	318	577	320	536
. w . w		3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.5	3.5
105.5	104.5	103	102.5	101	100.5	100	99.5	99.2	86	86
34	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

488 AA.	update)	28-FEB-2003 (Rel. 41, Last annotation update) Diacylglycerol O-acyltransferase 1 (EC 2.3.1.20) (Diglyceride	product 1).		Craniata; Vertebrata; Euteleostomi;	Catarrhini; Hominidae; Homo.				Billheimer J.T., Sturley S.L.; s encoding acvl coensume	· · ·		runcilon: catalyzes the terminal and only committed step in triacylqlycerol.synthesis by using diacylqlycerol and fatty acyl		CATALYTIC ACTIVITY: Acyl-CoA + 1,2-diacylglycerol - CoA +	Linacylyteroll: PATHWAY: Central role in the metabolism of cellular diacylglycerol		subcerbutak bocarion: integral membrane protein. Endoplasmic reticulum (Bv similarity).	SIMILARITY: BELONGS TO THE STEROL O-ACYLTRANSFERASE FAMILY.	This SWISS-DROW entry is converight It is produced through a collaboration	informatics and the EMBI	the European Bioinformatics Institute. There are no restrictions on its	s long as its content is in no way	See h	.ch).				400	GO:0006641; P:triacylglycerol Metabolism: TAS. GO:0006641; P:triacylglycerol metabolism: TAS.		Transierase; Acyltransierase; Transmembrane; Endoplasmic reticulum. Transmem 104 :124	IAĽ.	IAL.	IAL.	LAL.	IAL:
, PRT;	Created) Last sequence update)	Last annotation	related gene			Primates; Catar			3-9756920;	Behari A., Cromley D., Billheimer ation of two human genes encoding	ferase-relate	5-26771(1998	FUNCTION: Catalyzes the terminal triacylqlycerol.synthesis by usin	•	Acyl-CoA +	le in the met		N: Integral   arity).	TO THE STER	a Convertable	tute of Bio	tics Institut	institutions as long	ense agreemen	ense@isb-sib	7 1			ransferase ac	Jalycerol me	,	erase: Transmemb	POTENTIAL.	POTENTIAL.	POTENTIAL.	DOTENTIAL.	LOTERAL
STANDARD;	40, 40,	(Rel. 41, Loud ol O-acyltro	Se) (ACAT OR AGRP1.	(Human).	tazoa; Cho	neria; Pri	,	N.A.	592; PubMe	enari A., ( tion of tw	acyltrans	. 273:2676	Catalyzes ycerol.syn	bstrates.	ACTIVITY:	Central ro		AK LOCATIO	Y: BELONGS	Of entry 1	Swiss Inst.	Bioinforma	non-profit ing	ires a license	ail to lic	2. 38663007	843: DGAT1		5; F:acylt	1; P:triacy	PF03062; MBOAT; 1	Acyltransfe			189 209		
DGT1_HUMAN ID DGT1_HUMAN AC 075907:	2001	28-FEB-2003 (Diacylglycero	acyltransferase) (ACAT related gene product DGAT1 OR DGAT OR AGRP1.	Homo sapiens	Eukaryota; Metazoa;	Mammalla; Eutherla;	[1]	SEQUENCE FROM N.A.	MEDLINE-98434592; PubMed-9756920;	Collects P., Behari A., Cromley D., Bi "Characterization of two human genes	A:cholesterol acyltransferase-related enzymes	J. Blol. Chem	-1- FUNCTION: triacyldl		-!- CATALYTIC ACTIV	-!- PATHWAY:		-i- subcerror	-!- SIMILARIT	This SWISS-DROW entry is convright	between the	the European	use by non-profit institutions as long a modified and this statement is not removed	entities requires	or send an email to license@isb-sib.ch)	EMBI: AD050202: AAC63007 1:	Genew: HGNC:2843: DGAT1.		GO; GO: 0008415;		Pfam; PF03062	Transferase;				TRANSMEM 2	
PGTT TT OZ	담담	DE DI	GN DE	SO	88	38	RN	RP	ZZ d	¥ £	RT	¥ 6	ខ	ខ្ល	នូខ	ខ	ပ္ပင္ပ	38	ខ្ល	8 8	8	႘	នូខ	ខ	႘	3 2	D. S.	DR	Z 0	D. S.	DR	X F	FT	FT	F 5	T L	4

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N 398	Qy 345 KGDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWN :  : :  ::  :  :       :
L 403	Db 347 NDYLYQSENKLPSLTKKNIGFYALKVFSSLLLMEIILHYIYVGAIARTKAWNNDTPL
L 344	/IFTGFMGFIIEQY
A)	287 EFRKSLSGSTLQTIYESGKNVLEEKERLVAEHHIQDYNFINFIAYITYAPLFLVGPIIT
1 200	26ACTANAADKBKBKBKBK
	g — 7
F 226	MYGINSVKLETHAFIFFTLAHSLKRKRLIAAFAIWSYGIFTLFINQKMKNLP
L 236	OY 183 ISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPYVVTLRCDSAFI
F 173	Db 122 NSDPQYREFRSNFFLLAILILLQIILKKVFVKESKIPKTKEDEACGLVFVC
C 182	VLIAVNSRLIIENLMKYGWLI
27;	Query Match 5.8%; Score 162; DB 2; Length 609; Best Local Similarity 19.9%; Pred. No. 3.5e-05; Matches 94; Conservative 94; Mismatches 151; Indels 134; Gaps
02	RESULT 14  S65208  probable membrane protein YPL189w - yeast (Saccharomyces cerevisiae)  probable membrane protein YPL189w - yeast (Saccharomyces cerevisiae)  R;Alternate names: hypothetical protein P2201  C;Species: Saccharomyces cerevisiae  C;Date: 10-Dec-1994 #sequence_revision 31-May-1996 #text_change 19-Apr-2002  C;Accession: S65208; S65201  R;Rleger, M.; Mueller-Auer, S.; Schaefer, M.  submitted to the Protein Sequence Database, May 1996  A;Accession: S65208  A;Molecule type: DNA  A;Residues: 1-609 <arled (ab972)="" 177-609="" 1996="" <arled="" a;accession:="" a;cross-references:="" a;experimental="" a;molecule="" a;residues:="" ansorge,="" database,="" dna="" embl:z73545;="" h.;="" m="" may="" nentwich,="" nid:g1370394;="" pid:e246916;="" pid:g1370395;="" protein="" r;benes,="" rechmann,="" s.;="" s288c="" s65201="" s65201<="" s65202="" sequence="" source:="" strain="" submitted="" td="" the="" to="" type:="" u.;="" v.;="" voss,="" w.=""></arled>
F 305	Db 262 AMQFAQVFGCLFYVYYIFERLCAPLFRNIKQEPFSARVLVLCIF
F 370	IERVLKLSVPNLYVWLC
V 261	Db 208 FVRENVPRVLNSAKEKSSTVPIPTVNQYLYELFAPTLIYRDSYPRTPTVRWGYV

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A;Title: The genome sequence of the food-borne pathogen Campylobacter jejuni reveals A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Recession: B81409
A;Rocession: B81409
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-458 <PAR>
A;Residues: 1-458 <PAR>
A;Cross-references: GB:AL139075; GB:AL111168; NID:g6967817; PIDN:CAB75247.1; PID:g696
A;Experimental source: serotype O2, strain NCTC 11168
C;Genetics:
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C;Accession:
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                                                                                                                                                                                                                                                                                                                                                                                                                                             346 GDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNIL---AELLCFGDREFYKDWWNAKSV 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               292 PTLCYQPSYPRSACIRKGWVARQF---AKLVIFTGFMGFI----IEQYINDIVRNSKHPLK 345
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                                                                                                                                                                                   268 KDFWARWHISLSTFIRDYIYIPLGGNRKGIPRTVANILIAFILSGMWHGNTLA----FI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155 PTLLSGPIMRSSFFFEQAYOKREFKHANLIIILLVFGIVKKVLIANYLGIYAKSIL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              102 ILNFFGLEFLNIDLVLPIGISFYTFTS--ITYLVEVYQKRRLE-----SFLNLATFLSFF 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   237 ----SGVTLMLLTCIVWLKLVSYAHTSYDIRSLANAADKANPEVSYYVSLKSLAYFM-VA 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     136 FNLCVVVLIAVNSRLIIENLMKYGWLIRTDEWESSRSLRDWPLEMCCISLSIEPLAAETV 195
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323 VW---GLLHGIGIVFIHLLTLSKFSLQKIPALGRFLTFQFVCF----TWIFFYY 369
                                                                                         460 LWAFLGIMFQVPLVFITNYLQERFG----STVGNMIFWFIFCIFGQPMCVLLYY 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  196 EKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFL-----------
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86; Conserv
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Pred. No. 0.001;
1; Mismatches 165;
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Search completed: August 31, 2003, 04:59:56
Job time: 51 secs

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A; Map position: 1
C; Superfamily: probable membrane protein YCR048w
C; Keywords: acyltransferase; coenzyme A
                                                                                                                                                                                                                             A;Cross-references: EMBL:Z69729; NID:g1204167; PIDN:CAA93593.1; PID:e223696; PID:g120417 R;Connor, R.; Churcher, C.M.; Barrell, B.G.; Rajandream, M.A.; Walsh, S.V. submitted to the EMBL Data Library, February 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Genetics:
A;Gene: CESP:B0395.2
A;Map position: X
A;Introns: 48/2; 136/3;
                                                                                                                       A;Cross-references: EMBL:269729; PIDN:CAA93593.1; GSPDB:GN00066; SPDB:SPAC13G7.05
A;Experimental source: strain 972h-; cosmid c13G7
                                                                                                                                                                                                 A; Reference number: Z21732
A; Accession: T37655
                                                                                                                                                                                                                                                                                                                                                                                     probable sterol O-acyltransferase (EC 2.3.1.26) SPAC13G7.05 [similarity] -
C;Species: Schizosaccharomyces pombe
C;Date: 20-7ul-1996 #sequence_revision 13-Mar-1997 #text_change 08-Sep-2000
C;Accession: S67434; T37655
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A; Residues: 1-537 <CO2>
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A; Residues: 1-537 <CON>
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submitted to the EMBL Data L
A;Reference number: S67430
A;Accession: S67434
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                                                                                                                                                                                   preliminary; translated
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D-RAMKR---KIGGTIDAWPTMEQFLYYQFCPSFIYRDSYPRTEKRDMKAAGLYFLECLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DIRSLANAADKANPEVSYYVSLKSLAYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RSLRDWP-LFMCCISL-----SIFP-------LAAFTVEKLVLQKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESLLTSE--FRNGHMKIIYNCFTAAFLLFFLRAMIDDILVHKMPFHHTWLIWWNFQNFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESPLSSDAIFKQSHAG-LFNLCVVVLIAVNSRLIIENLM-----KYGWLIRTDFWFSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               THRSAWNTALWFULLI-GTGMFIAFYGQEWYARRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----VGNMIFWFIFCIFGOPMCVLLYYHDLMNRKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLVFITNYLQERFGST-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FSEMMQFADRQFYLNWWHSSNMAEYYRNWNLVVHDWLYAYVFRDLAAYNPGRKGQRAAQM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LAELLCFGDREEYKDWWNAKSVGDYWRMWNMPVHKWMVRHI-----YFPCLRSKIPKTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FTGFMGFIIEQYINPIVRNSKHPLKGDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVTLMLLTC---IVWLKLVSYAHTSY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PTMAVWTGMFLSTIGVYYAYEHWSTIPSKNTDLASNLPFVTAYVTYLAAFFYFPL---KF
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21.3%;
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23
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Pred.
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Pred. No. 1e-14;
                                                                                                                                                                                    from GB/EMBL/DDBJ
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 277.5; DB 2;
No. 1.6e-14;
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                537;
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259
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280 -IVALTA-----KYLSROMRSEVGNVVYPDNINFFNYVD-----YLLVPSLVYSM
                                                                                                                                                                                                                                                                                                                                                                                                                              240 TLMLLTCIVWLKLVSYAHTSYDIRS-LANAADKANPEVSYYVSLKSLAYFMVAPTLCYQP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              226 GYISEIRILHNEYEKLLKFVRECLNSTEKDEKYTFELTFPNKPAETISTLQAEE-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                202 KYISEPVVI-----
                                                                                          TWDEFSREWNKPVHVFLMRHVYHSSISGFKLKKSHAVLLTFLISALVHEFVMLLATGKFR
                                                                                                                                                                                                                                                                                                                                      SYPRSACIRKGWVARQ-----
                                                                                                                                                                                                                                       KHPLKGDLLYAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAK
CYILTEQLLQIPLYDLQQMFAFKKRDILGNVFFW--IGMFTGPSFLCIL
                                             LWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFWFIFCIFGQP--MCVL
                                                                                                                                          SVGDYWRMWNMPVHKWMVRHIYFPCLRS-KIPKTLAIIIAFLVSAVFHELCIAVPCRLFK
                                                                                                                                                                                                                                                                                      EFPRVAHFRWHYMAFKAGSTFGLLALTLALVDWYFVPSAVAVKDLDFIGKLRIAPLLMN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IQTLWQGFYMVLAVYWVKH---RDFPIVQC----VF---FTLHCAVLIMKQFSYSHHM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IENLMKYGWLIRTDFWFSSRSLRDWPLFMCCISLSIFPLAAFTVEKLVL-----Q
                                                                                                                                                                                         -----KIMFPAIILYLIMFYLIFDCILNAFAEITKFADRGFYGAWWNTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -FLHIIITMT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69;
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                                                                                                                                                                                                                                                                                                                                   -----FAKLVIFTGFMGFIIEQYINPIVRNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -EVLYP-----VYVTLRCDSAFLSGV
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R; Pape, M.E.; Schultz, P.A.; Rea, T.J.; DeMattos, R.B.; Kieit, N.; Disyaut, N.J. J. Lipid Res. 36, 823-838, 1995

J. Lipid Res. 36, 823-838, 1995

A;Title: Tissue specific changes in acyl-CoA: cholesterol acyltransferase (ACAT) mRNA
A;Reference number: 147040; MUID:95341197; PMID:7616126

A;Accession: 147040
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-305 <PAP>
A;Cross-references: GB:578180; NID:g1515471; PIDN:AAB06959.1; PID:g1515472
A;Cross-references: GB:578180; NID:g1515471; PIDN:AAB06959.1; PID:g1515472 C;Comment: This enzyme helps maintain cellular cholesterol y cholesterol and oxygenated sterols.
C;Superfamily: sterol O-acyltransferase sterol O-acyltransferase (EC 2.3.1.26) - rabbit (fragment) R;Alternate names: acyl-coenzyme A cholesterol acyltransfe C;Species: Oryctolagus cuniculus (domestic rabbit) C;Date: 14-Feb-1997 \*sequence\_revision 14-Feb-1997 \*text\_c C;Accession: I47040 C; Keywords: acyltransferase; cholesterol; coenzyme A; #text\_change 21-Jul-2000 endoplasmic reticulum; transmem

118 RE--SPLSS---58 DYRDRIDSYYNDDAQGTANLAGDNNGGGDNNGGGRGGGEGRGNADATFTYRPSYPAHRRA 117 KDLRAPPEQGKIFVARRSLLDELFEVDHIRTIYHMFIALLILFILSTLVVDYIDEGRLVL SHPLMYSLFHGLLFMVFQLGILGFGPTYIVL---EFNLLSYAFGKLPTVVW-----TWWTMFLSTLSIPYF-E-NLMKYGW-LIRTDFWFSSRSLRDWPLFMCCISLSIFPLAAFTVEKLVLQKYI-----SEPVVIFL-HIIITMTEVL-----YPVYVTLRCDSAFLSGVTLMLLTCIVWLKLVSYAHT **EVGSHFDDFVTNLIEKSASL--**---SYDIRSLANAADKAN----DAIFKQSH-AGLFNLCVVVLIAV------NSRLII 152 PEVSYYVSLKSLAYFMVAPTLCYQPSYPRSACIRKGWV 311 -AYTLPPASRFIVILEQIRLIMKAHS GCALTTFSILKEMKNNHRA -LFQHWANGYSKS 151 47 207 204 107

6.0%;

Score 165.5; DB 2; Pred. No. 8.4e-06;

63;

Mismatches

109;

Indels Length

Gaps

305; 107;

q

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RESULT 10

$19461

probable membrane protein YCR048w - yeast (Saccharomyces cerevisiae)

C;Species: Saccharomyces cerevisiae

C;Species: Saccharomyces cerevisiae

C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 20-Jun-2000

C;Accession: $19461; $19762

R;Grivell, L.A.; de Haan, M.; Maat, M.J.

submitted to the Protein Sequence Database, March 1992

A;Reference number: $19412

A;Recession: $19461

A;Molecule type: DNA

A;Residues: 1-610 <GRI>
A;Residues: 1-610 <GRI

A;Residues: 1-610 <GRI

A;Bolotin-Fukuhara, M.; Buhler, J.M.; Daignan-Fornier, B.; Doira, C.; Francingues-Gailla

submitted to the Protein Sequence Database, March 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                probable sterol o-acyltransferase 2 - fission yeast (Schizosaccharomyces pombe) C;Speciles: Schizosaccharomyces pombe C;Speciles: Schizosaccharomyces pombe C;Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 01-Mar-2002 C;Accession: T41684 R;Wedler, H.; Duesterhoeft, A.; McDougall, R.C.; Rajandream, M.A.; Barrell, B.G
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A; Map position: 3
C; Superfamily: probable materials
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A; Residues: 1-472 <WED>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        submitted to the EMBL Data Library, A; Reference number: 221742 A; Accession: T41684
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Matches 126
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100 NADATF-----TYRPSVPAHRRARESPLSSDAIFKQSH-----AGLFNLCVVVL
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                                                                                                                                                                                                                                                                                                                                                                               KLWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFWFIFCIFGQPMCVLLY 508
                                                                                                                                                                                                                                                                                                                                                                                                                    WDQFARTWNKPVHYFLLRHVYVP-LNSFMSKSLSTFFTFFVSSVLHELVMGCITLKIRGY
                                                                                                                                                                                                                                                                                                                                                                                                                                          VGDYWRMWNMPVHKWMYRHIYFPCLRSKIPKTLAIIIAFLVSAVFHEL---CIAVPCRLF
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LCYQPSYPRSACIR-----KGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLK 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NGWYSYCYHSLNKLQSKKTDLDDDERSSVEFYEHCLNHHGNTYPENLTIPNALDFLFMPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -AHTSYDIRSL-----ANAADKANPEVSYY------VSLKSLAYFMVAPT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIMIFMSFLENFELTGRPVVGTIFKYFQSNLLD--LAKADLAMSSMFLLAFPFQKIFALG
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Library, September
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Pred. No. 9.
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.8e-19;
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1999
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       A; Experimental
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RESULT 11
T18744
A; Molecule type: DNA
A; Residues: 1-467 <WIL>
A; Cross-references: EMB
                                                                                      A; Reference number: Z19014
                                                                                                                                       hypothetical protein B0395.2 - Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Decies: C-Oct-1999 #sequence_revision 15-Oct-1999 #text_change C;Accession: T18744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Map position: 3R
C; Superfamily: probable membrane
C; Keywords: transmembrane protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Reference number: S19
A; Accession: S19762
A; Molecule type: DNA
A; Residues: 1-328 <BOL>
                                                                    A; Reference number: A; Accession: T18744
                                                                                                                       R; McMurray, A.
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F; 228-255/Domain:
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                                    A; Molecule
                                                   A; Status: preliminary; translated
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MKYGWL-IR--TDFWFSSRSLRDWPLFMCCISLSIFPLAA---FTVEKLVLQKYISEPVV
                                                                                                                                                                                                                                                                                                                                              VFHEMAMFAIFRRVRGYLFMFQLSQFVWTALSNTKFLRARPQLSNVVFSFGVC-SGPSII
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 EMBL: 268131;
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   PIDN:CAA92217.1; GSPDB:GN00028;
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Pred. No. 2.3e
76; Mismatches
                                                      from
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.3e-16;
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<TM2>
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   CESP:B0395.2
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333

365 279 305

246

209 17

249

603 504 444

484 385 424

544

source:

clone

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C;Species: Homo sapiens (man, C;Date: 28-May-1999 #sequence_revision: C;Accession: A59038; A48026 C;Accession: A59038; Chang, T.Y. submitted to Genbank, May 1999 A;Description: Molecular cloning and functions of the control of the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Pathway: cholesterol metabolism
A;Note: helps maintain cellular cholesterol homeostasis; plays a role in the development C;Superfamily: sterol O-acyltransferase
C;Keywords: acyltransferase; cholesterol metabolism; coenzyme A; endoplasmic reticulum; F;409,491/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Gene: GDB:SOAT; STAT; ACAT
A;Cross references: GDB:251696; OMIM:102642
A;Map position: 1q25-1q25
C;Function:
C;Function:
A;Description: catalyzes the esterification of cholesterol by acyl-CoA
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A;Residues: 1-550 (CHA2)
A;Cross-references: GB:L.21934; NID:g4878021; PIDN:AAC37532.2;
R;Chang, C.C.Y.; Huh, H.Y.; Cadigan, K.M.; Chang, T.Y.
J. Biol. Chem. 268, 20747-20755, 1993
A;Title: Molecular cloning and functional expression of human A;Reference number: A48026; MUID:94012607; PMID:8407899
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A; Contents: correction
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N;Alternate names: ACAT; acyl-coenzyme A cholesterol acyltransferase
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                                             NAKSVGDYWRMWNMPVHKWNVRHIY--FPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPC
                                                                                                                                                                                  PLKGDLLYAIERVLKLSV-----PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWW
                                                                                                                                                                                                                                                                                                       SLAYFMVAPTLCYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSK-H
                                                                                                                                                                                                                                                                                                                                                                                                                                         CDSAFLSGVTLMLLTCIVWLKLVSYAHT---SYDIRSLANAADKAN----PEVSYYVSLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SHAGLFNLCVVVLIAV-----NSRLIIE-NLMKYGW-LIRTDFWFSSRSLRDWPLFMCC
                                                                                                                                                                                                                                                                                                                                                                               ---AYTLPPASRFIIIFEQIRFVMKAHSFVRENVPRVLNSAKEKSSTVPIPTVNQYL---
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NSTSYSNYYRTWNVVVHDWLYYYAYKDFLWFFSKRFKSAAMLAVFAVSAVVHEYALAV-C
                                                                                                                                                                                                                                                       ---YELFAPTLIYRDSYPRNPTVRWGYVAMKFAQVFGCFFYVYYIFERLCAPLFRNIKQE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -LSTFSVPYFLFQHWATGYSKSSHPLIRSLFHGFLFMIFQIGVLGFGPTYVVL-
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26.7%; Pref
75;
                                                                                                                           RVLVLCVFNSILPGVLILFLTFFAFLHCWLNAFAEMLRFGDRMFYKDWW
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 397; DB 1
Pred. No. 4e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      functional expression of human acyl-coenzyme A:cho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28-May-1999 #text_change 05-May-2000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---TWWIMF---
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FYLFFFQMLQMPLVALTNTKFMRNRTIIGNVIFWLGICMGPSVMCTL

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F;435-451/Domain: transmembrane
F;483-499/Domain: transmembrane
F;622-638/70000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C;Superfamily: probable membrane
C;Keywords: transmembrane protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: EMBL:271634; NID:g1302503; PIDN:CAA96298.1; A;Experimental source: strain S288C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 1-642 < POH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Reference number: A; Accession: S63350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; Accession: R; Pohl, T.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Species: Saccharomyces cerevisiae
C;Date: 27-Apr_1996 #sequence_revision 03-May-1996 #text_change 20-Jun-2000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: SGD:S0005302; MIPS:YNR019w
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      submitted to the Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          probable membrane protein YNR019w - yeast (Saccharomyces N; Alternate names: hypothetical protein N3206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
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Best Local
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                                                                                                                                                                                                                                                                                                                                    263
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LWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFWFIFCIFGQPMCVL 506
                                          SWADESRIWNIPVHKELLRHVYHSSMSSEKLNKSQATLMTEELSSVVHELAMYVIEKKLR
                                                               SVGDYWRMWNMPVHKWMYRHIYFPCLRS-KIPKTLAIIIAFLVSAVFHELCIAVPCRLFK
                                                                                                                           WTGILDRLLKWVGLLVDIVPGFIVMYILDFYLIWDAILNCVAELTRFGDRYFYGDWWNCV
                                                                                                                                                                 LLYAIERVLKL-----SVPNLYV-WLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAK 400
                                                                                                                                                                                                                                                                                                                                    RSLANAADKAN-PEV---
                                                                                                                                                                                                                                                                                                                                                                                                                 MTEVLYPVYVTLRCDSA----FLSGVTLMLLTCIVWLKLVSYA------HTSYDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LRDWPLFMCCISLSIFPLAAFTVEKLVLQKYISEPVVIFLH---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KNDGAAPTTVPTAATSETVVTVETTIISSNESGLYVAFWMAIAFGAVKALIDYYYQHNGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KQSHAGLFNLCVV----VLIAVNSRLIIEN---LMKYGWL-----IRTDFWFS-SRS
                                                                                                                                                                                                                                                    CYQPSYPRSACIRKGWVARQFAKLVIFTGFMGFIIEQYI-NPI-----VRNSKHPLKGD
                                                                                                                                                                                                                                                                                          SALAKYKDSINDPKVIGALEKSCEFCSFELSSQSLSDQTQKFPNNISAKSFFWFTMFPTL
                                                                                                                                                                                                                                                                                                                                                                        IYEFLFVIFYMYLTENILKLHWLSKIFLFLHSLVLLMKMHSFAFYNGYLWGIKEELQFSK
                                                                                                                                                                                                                                                                                                                                                                                                                                                         FKDSEI-----LKFMTTNLFTVASVDLLMYLSTYFVVGIQYLCKWGVLKWGTTGWIFTS
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S63346
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3; Mismatches
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Pred. No. 1.
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176;
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A; Reference number: 214177
A; Accession: T01293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hypothetical protein F27F23.25 - Arabidopsis thaliana C;Species: Arabidopsis thaliana (mouse-ear cress) C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 12-Feb-1999 #sequence_revision 12-Feb-1999 #text_change 30-Apr-1999 C;Accession: T01293 R;Rounsley, S.D.; Lin, X.; Ketchum, K.A.; Crosby, M.L.; Brandon, R.C.; Sykes submitted to the EMBL Data Library, May 1998
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A; Note: F27F23.
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A; Residues: 1-131 <ROU>
A; Cross-references: EMB
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Best Local S
Matches 130
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Matches 16
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                                                       DRIDSVVNDDAQGTANLAGDNNGGGDNNGGGRGGGEGRGNADATFTYRPSVPAHRRARES
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PLSSDAIFKQ
                                                                                                                                 MAILDSAGVTTVTENGGGEFVDLDRLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVR
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                                   DRIDSYVNDDAQGTANLAGDNNGGGDNNGGGRGGGEGRGNADATFTYRPSYPAHRRARES
                                                                                                            MAILDSAGVTTVTENGGGEFVDLDRLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVR
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25
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Library, May 1998
thaliana chromosome II BAC F27F23 genomic sequence
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                                                                                                                                                                                                      Score 670; I
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8; Mismatches
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8.6e-47;
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cy cholesterol and oxyge
C;Genetics:
A;Gene: ACACT
A;Map position: 1
C;Superfamily: sterol C
C;Keywords: acyltransfe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: GB:L42293; NID:g1066809; PIDN:AAC420 R;Green, S.; Steinberg, D.; Quehenberger, O. Biochem. Biophys. Res. Commun. 218, 924-929, 1996 A;Title: Cloning and expression in Xenopus occytes of a A;Reference number: JC4617; MUID:96158986; PMID:8579615 A;Accession: JC4617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R; Uelmen, P.J.; Oka, K.; Sullivan, M.C.; Chang, T. J. Biol. Chem. 270, 26192-26201, 1995
A;Title: Molecular cloning of mouse ACACT.
A;Reference number: 149454; MUID:96064687; PMID:7592824
A;Accession: 149454
A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; Species: Mus musculus (no C) Date: 10-Sep-1999 #sequen C; Accession: 149454; 174617
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A;Residues: 1-194,'R',196-540 <GRE>
A;Cross-references: GB:S81092; NID:91478335; PIDN:AAB36050.1; PID:91478336
A;Experimental source: peritoneal macrophages
C;Comment: This enzyme helps maintain cellular cholesterol homeostasis by y cholesterol and oxygenated sterols.
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A; Residues: 1-540 < RES>
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Date: 10-Sep-1999 #sequence_revision 10-Sep-1999
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                                                                                                                                                                                                                                                                                                                                          GVTLMLLTCIVWLKLVSYAHT--SYDIRSLANAADKAN-----PEVSYYVSLKSLAYFMV 290
                                                     LFKLWAFLGIMFQVPLVFITNYLQERFGSTVGNMIFW-----FIFCIFGQ 501
                                                                                        YYRTWNVVVHDWLYYYVYKDLLWFFSKRFKSAAMLAVFALSAVVHEYALAI-CLSYFYPV
                                                                                                                           YWRMWNMPVHKWMVRHIYFPCL--RSKIPKTLATIIAFLVSAVFHELCIAVPCR-----
                                                                                                                                                                   ----RVLVLCVFNSILPGVLILFLSFFAFLHCWLNAFAEMLRFGDRMFYKDWWNSTSYSN
                                                                                                                                                                                       YAIERVLKLSV-----PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGD
                                                                                                                                                                                                                                            APTLIYRDNYPRTPTVRWGYVAMQFLQVFGCLFYVYYIFERLCAPLFRNIKQEPFSA---
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                 LFVLFMFFGMAFN----FIVNDSRKR---PIWNIMVWASLFLGYGLILCFYSQ 510
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28.5%;
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Pred. No. 1.3
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A;Cross-references: (C;Genetics: A;Gene: At2g19450 A;Map position: 2
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A;Title: Sequence analysis of chromosome 2 of the plant Arabidopsis thaliana.
A;Reference number: A84420; MUID:20083487; PMID:10617197
A;Accession: H84576
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A; Molecule type: DNA
A; Residues: 1-441 <S;
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                                                                  ERFGSTVGNMIFWFIFCIFGQPMCVLLXYHDLMNRKGSMS
                                                                                                                             IYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQVPLVFITNYLQ 480
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                                                                                                                                                                                                                                                                                                                                                                                              CCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DRIDSVVNDDAQGTANLAGDNNGGGDNNGGGGRGGGEGRGNADATFTYRPSVPAHRRARES
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                                                                                                                                                                            PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVRH
                                                                                                                                                                                            PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVRH
                                                                                                                                                                                                                                        PRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYAIERVLKLSV
                                                                                                                                                                                                                                                                                                                                                                                                                             PLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMK----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MAILDSAGVTTVTENGGGEFVDLDRLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVR
                                                                                                              IYFPCLRSKIPKTLAIIIAFLVSAVFHELCIAVPCRLFKLWAFLGIMFQ
                                                                                                                                                                                                                                                                                                     LMLLTCIVWLKLVSYAHTSYDIRSLANAADKANPEVSYYVSLKSLAYFMVAPTLCYQPSY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S.; Rounsley, S.D.; Shea, T.P.; Benito, M.I.; Town, C.D.; Fujii,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GB: AE002093;
                                                  VGNMIFWFIFCIFGQPMCVLLYYHDLMNRKGSMS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81.4%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NID: g4191775; PIDN: AAD10144.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 2255.5; DB 2
Pred. No. 1.1e-173;
5; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      L.A.; Shen, M.;
                                                                                                                                                                                                                                                                                                                                                                  -LSDPVILKMD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VanAken, S.E.;
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L.; Tallon, L
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T19027
                                                                                                                                                                                                                                                                                                                                                                                                           probable sterol O-acyltransferase (EC 2.3.1.26) H19 C;Species: Caenorhabditis elegans C;Date: 15-Oct.1999 #sequence_revision 15-Oct.1999 C;Accession: T19027; T23106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
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A; Introns: 44/3; 70/3; 104/3; 150/2; 177/3; 184/3;
A; Note: F27F23.26.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sterol O-acyltransferase homolog F27F23.26 - Arabidopsis thallana C;Species: Arabidopsis thallana (mouse-ear cress) C;Date: 12-Feb-1999 #sequence_revision 12-Feb-1999 #text_change 3 C;Accession: T01294
                                                                                                                           A;Cross-references: EMBL:292835; PIDN:CAB07399.1; GSPDB:GN00023; CESP:H19N07.4 A;Experimental source: clone H19N07
                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-496 <WI2>
                                                                                                                                                                                                         A; Reference number: A; Accession: T23106
                                                                                                                                                                                                                     submitted to the EMBL Data A; Reference number: Z19678
                                                                                                                                                                                                                                                                                                                                                              submitted to the EMBL Data Library, A; Reference number: 219061
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 1-231 < ROU>
                                                                              A; Map position:
                                                                                              A; Gene: CESP:H19N07.4
                                                                                                                                                                                       A;Status: preliminary; translated
                                                                                                                                                                                                                                                                      A; Experimental source:
                                                                                                                                                                                                                                                                                    A; Cross-references:
                                                                                                                                                                                                                                                                                                 A; Residues: 1-496 <WIL>
                                                                                                                                                                                                                                                                                                                A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                               A; Accession: T19027
                                                                                                                                                                                                                                                                                                                                                                                                R; Kershaw,
                                             :Introns: 5/3; 43/2; 77/3; 139/1; 171/;
:Superfamily: sterol_O-acyltransferase
                                                                                                                                                                                                                                                                                                                                ;Status:
                                                                                                             Genetics:
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    Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         222;
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                                  acyltransferase;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YAIERVLKLSVPNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMW
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e: clone C06H2
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    26.18;
                                                                                                                                                                                                                                  Library,
                                  coenzyme
                                                                                                                                                                                                                                                                                   PIDN:CAA99773.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1202; DB 2
Pred. No. 2.7e-89;
2; Mismatches
                                                                                                                                                                                         from GB/EMBL/DDBJ
   Score
                                                                                                                                                                                                                                                                                                                                  from GB/EMBL/DDBJ
                                                             171/3;
                                                                                                                                                                                                                                       March 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          K.A.; Crosby, M.L.; Brandon, R.C.; Sykes, May 1998
                                                                                                                                                                                                                                                                                                                                                                               June
    724
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                                                                                                                                                                                                                                                                                   GSPDB:GN00023; CESP:H19N07
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<u>ب</u>
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 Length
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    Caenorhabditis elegans

 496;
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409

182

349

122

289

GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.

OM protein protein search, using sw model

Run on: August 31, 2003, 04:34:04 ; Search time 46 Seconds (without alignments) 1087.124 Million cell updates/sec

Title: Perfect score: US-09-623-514A-2 2771

Sequence: 1 MAILDSAGVTTVTENGGGEF.....QPMCVLLYYHDLMNRKGSMS 520

Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

Searched: 283308 seqs, 96168682 residues

Total number of hits satisfying chosen parameters: 283308

Minimum DB Maximum DB seq length: 0 seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database : PIR\_76:\*
1: pir1:\*
2: pir2:\*
3: pir3:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

### SUMMARIES

29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	υī	4	ω	N	_	No.	Result
113	115	116	117.5	118.5	120	121.5	121.5	121.5	122	126	129	134.5	139.5	142	162	165.5	277.5	279	301	329	378.5	397	415.5	670	724.5	1202	2255.5	2771	Score	
4.1	4.2	4.2	4.2	4.3	4.3	4.4	4.4	4.4	4.4	4.5	4.7	4.9	5.0	5.1	5.8	6.0	10.0	10.1	10.9	11.9	13.7	14.3	15.0	24.2	26.1	43.4	81.4	100.0	; -	Query
395	652	1689	499	865	1235	1170	450	450	715	495	560	865	404	458	609	305	537	467	610	472	642	550	540	131	496	231	441	520	Length	
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dltB protein - Bac	NADH2 dehydrogenas	sodium channel pro	alginate o-acetylt	probable membrane	potassium transpor	probable 2-acylgly	CT805 hypothetical	conserved hypothet	NADH2 dehydrogenas	probable alginate	probable membrane	probable membrane	DltB membrane prot	probable transmemb	probable membrane	sterol O-acyltrans	probable sterol O-	hypothetical prote	probable membrane	probable sterol o-	probable membrane	sterol O-acyltrans	sterol O-acyltrans	hypothetical prote	probable sterol O-	sterol O-acyltrans		rol o	Description	

	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	
	105.5	106	106	106.5	107	107	107	108	108.5	109	109.5	109.5	111	111	112	112	
	3.8	ა 8	3.8	3.8	3.9	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.0	4.0	4.0	4.0	
	437	2895	546	1553	633	395	334	527	783	618	388	263	420	395	1241	352	
	N	N	N	N	N	N	N	N	N	<b>—</b>	N	N	N	N	N	N	
	S15144	H85362	S52053	T18502	I64143	AE2349	T19955	G64626	A96825	S38004	JN0605	AE1557	D83556	B96610	JU0466	T48903	
•	hypothetical prote	hypothetical prote	cytochrome-c oxida	hypothetical prote	hypothetical prote		hypothetical prote	alginate O-acetyla	hypothetical prote	probable transport	somatostatin recep	hypothetical prote	probable coat prot	hypothetical prote	potassium transpor	wax synthase [impo	

# ALIGNMENTS

diacylglycerol O-acyltransferase (EC 2.3.1.20) [validated] - Arabidopsis thaliana C;Species: Arabidopsis thaliana (mouse-ear cross) C;Date: 24-Oct-2000 #sequence\_revision 24-Oct-2000 #text\_change 17-Nov-2000 C;Accession: T52584 R;Hills, M.J; Lu, C.; Hobbs, D.H. FEBS Lett. 452, 145-149, 1999 A;Title: Cloning of a cDNA encoding diacylglycerol acyltransferase from Arabidopdis t N;Reference number: Z26127 A;Accession: T52584 A;Status: preliminary; translated from GB/EMBL/DDBJ A;Molecule type: mRNA A;Residues: 1-520 <HIL-A;Cross-references: EMBL:AJ131831; PIDN:CAB44774.1 A;Experimental source: cultivar Columbia

A;Description: EC 2.3.1.20 [validated, MUID:99313150]; catalyzes the final acylation A;Pathway: triacylglycerol biosynthesis C;Keywords: acyltransferase; coenzyme A

C; Function:

Matches	Query Match Best Local Similarity
520;	ich 1 Sim
٧	-
tive	100.0%;
,0	m to
0; Mismatches	100.0%; Score 2771; DB 2; 100.0%; Pred. No. 4.5e-215;
0;	DB 2; e-215;
Indels	Length
0;	520;
Gaps	
0;	

Qy	-	MAILDSAGVTTVTENGGGEFVDLDRLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVR 60	
DЬ	ш	MAILDSAGVTTVTENGGGEFVDLDRLRRRKSRSDSSNGLLLSGSDNNSPSDDVGAPADVR 60	
Оу	. 61	DRIDSVVNDDAQGTANLAGDNNGGGDNNGGGRGGGEGRGNADATFTYRPSVPAHRRARES 120	
Db	61	DRIDSVVNDDAQGTANLAGDNNGGGGDNNGGGRGGGEGRGNADATFTYRPSVPAHRRARES 120	
Qy	121	PLSSDAIFKQSHAGLFNLCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRDWPLFM 180	
Db	121	PLSSDAIFKQSHAGLFULCVVVLIAVNSRLIIENLMKYGWLIRTDFWFSSRSLRDWPLFM 180	
Qy	181	CCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVT 240	
Db	181	CCISLSIFPLAAFTVEKLVLQKYISEPVVIFLHIIITMTEVLYPVYVTLRCDSAFLSGVT 240	
Оу	241	LMLLTCIVWLKLVSYAHTSYDIRSLANAADKANPEVSYYVSLKSLAYFMVAPTLCYQPSY 300	
Вb	241	LMLLTCIVWLKLVSYAHTSYDIRSLANAADKANPEVSYYVSLKSLAYFWVAPTLCYQPSY 300	
Qy	301	PRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYAIERVLKLSV 360	
Db	301	PRSACIRKGWVARQFAKLVIFTGFMGFIIEQYINPIVRNSKHPLKGDLLYAIERVLKLSV 360	
Qy	361	PNLYVWLCMFYCFFHLWLNILAELLCFGDREFYKDWWNAKSVGDYWRMWNMPVHKWMVRH 420	
Дb	361	PNLYVWLCMEYCFFHLWLNILAELLCFGDREFYKDWWNAKSYGDYWRMWNMPYHKWMYRH 420	

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RESULT 15
CENB_HUMAN
RA Deloukas P., Matthews L.H., Ashurst J., Burton J., Gilbert J.G.R., An Jones M., Stavrides G., Almeida J.P., Babbage A.K., Bagguley C.L., RA Bailey J., Barlow K.F., Bates K.N., Beard L.M., Beare D.M., RA Basley J., Barlow K.F., Bates K.N., Beard L.M., Beare D.M., RA Basley O.P., Bird C.P., Blakey S.B., Bridgeman A.M., Brown A.J., RA Beasley O.P., Bird C.P., Blakey S.B., Bridgeman A.M., Brown A.J., RA Beasley O.P., Clamp M., Clark G., Clark L.N., Clark S.Y., Clee C.M., Chark D.D., Burnill W.D., Butler A.P., Carder C., Carter N.P., RA Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R., RA Clegg S., Cobley V.E., Collier R.E., Connor R.B., Corby N.R., RA Clegg S., Cobley V.E., Gollier R.E., Connor R.B., Corby N.R., RA Clegg S., Cobley V.E., Gollier R.E., Johnson R.D., Dunn M., Rallington A., Coville G.J., Deadman R., Dhami P.D., Dunn M., Rall R.E., Jarden D.V., Griffiths C., Griffiths M.N.D., Gwilliam R., Hall R.E., RA Hammond S., Harley J.L., Heath P.D., Ho S., Holden J.L., Howden P.J., RA Huckle E., Hunt A.R., Hunt S.E., Jekosch K., Johnson C.M., Johnson D., RA Huckle E., Hunt A.R., King A., Knights A., Laird G.K., Lawlor S., RA Kay M.P., Kinmerley A.M., King A., Knights A., Laird G.K., Lawlor S., RA Kay M.P., Kimberley J.M., McConnachie L.J., McLay K., McMurray A.A., RA Milne S.A., Mattry D., Moore M.J.F., Mullikin J.C., Nickerson T., RA Milne S.A., Mattry D., Moore M.J.F., Mullikin J.C., Nickerson T., RA Milley S.A., Pearce T.A.V., Peck A.I., Nickerson T., Scott C.E., Sehra H.K., Shownkeen R., Sims S., RA Kuce C.D., Smith M.L., Soderlund C., Steward C.A., Sulston J.E., RA Swann R.M., Sycamore N., Taylor R., Teope A., Tromans A.C., Vaudin M., Wallis J.M., Thorpe A., RA Williams C., Whittaker P., Willey D.L., Williams L., Williams S.A., RA Milmedad S.L., Whittaker P., Willey D.L., Williams L., Beck S., RA Miltehead S.L., Whittaker P., Willey D.L., Beck S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-APR-1988
01-AUG-1992
15-SEP-2003
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                                                                                                                                                                                                                                                                                                                                                                                     "The DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sullivan K.F., Glass C.A.; "CENP-B is a highly conserved mammalian homology to the helix-loop-helix family Chromosoma 100:360-370(1991).
                           [5]
STRUCTURE BY NMR OF 1-56.
STRUCTURE BY NMR OF 1-56.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HUMAN
            MEDLINE=98119825; PubMed=9451007;
Iwahara J., Kigawa T., Kitagawa K
                                                                                                                                                     MEDLINE=93107144; PubMed=1469042; Yoda K., Kitagawa K., Masumoto H.,
                                                                                                                                                                                         SUBUNITS, AND DOMAINS
                                                                                                                                                                                                                                                          Kaiser D.A., Pollar "Molecular cloning
                                                                                                                                                                                                                                                                                                                                                                   Nature
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MEDLINE=91372020; PubMed=1893793;
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                                                                                                                   containing
                                                                                                                                                                                                                                          autoantigen.";
                                                                                                                                                                                                                                                                                                                MEDLINE=87166180;
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                                                                                                                                                                                                                                                                                                                                                                   NA sequence and comparative 414:865-871(2001).
                                                                                    Biol
                                                                                                                                                                                                                             Biol.
                                                                                                                                     centromere protein,
                                                                                                                                                                                                                                                                                              W.C.,
                                                                                                     from
                                                                    four potential alpha helices at from dimerizing activity."; ol. 119:1413-1427(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                          6180; PubMed=2435739;
Sullivan K.F., Machlin F
Pollard T.D., Rothfield N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Human)
                                                                                                                                                                                                                             104:817-829(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . 23, Last sequence update)
. 42, Last annotation update)
autoantigen B (Centromere protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07, Creat
23, Last
42, Last
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                                                                                                                                                                                                                                                              of cDNA
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Primates;
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                                                                                                                                                                                                                                                              for CENP-B, the
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                                                                                                                                                                                                                                                                                                                                                                                   analysis
                                                                                                                                                       Muro Y.,
                Masumoto
                                                                                                                                                                                                                                                                          P.S.,
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of proteins.";
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                                                                                                                                                                                                                                                            , Cooke C.A.,
Cleveland D.W.;
major human centromere
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H
                                                                                                                                                       Okazaki T.;
              Ή.
                                                                                                                                                                                                                                                                                                                                                                                   human chromosome 20.";
                                                                                                                       NH2
                                                                                                                                       binding domain
                Okazaki
                                                                                                                     terminus,
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                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                            TURN
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                                                                                                                                                                                                                                                                                                                                                                                                               MIM;
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PDB; 1HLV; 11-JAN-02.
Genew; HGNC:1852; CENPB.
                                                                                                                                                                                                                       XITEH
                                                                                                                                                                                                                                                                                                                   SMART; SM00674;
                                                                                                                                                                                                                                                                                                                                               InterPro;
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                                                                                                                                                                                                                                                                                               3D-structure
                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR004875; CENP-B.
InterPro; IPR006600; CENPB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           send
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SUBUNIT: Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION: INTERACTS WITH CENTROMERIC HETEROCHROMATIN IN CHROMOSOMES AND BINDS TO A SPECIFIC SUBSET OF ALPHOID SATELLITY DIA, CALLED THE CENP-B BOX. MAY ORGANIZE ARRAYS OF CENTROMERE SATELLITE DNA INTO A HIGHER ORDER STRUCTURE WHICH THEN DIRECTS CENTROMERE FORMATION AND KINETOCHORE ASSEMBLY IN MAMMALIAN
                                                                                                                                                                                                                                                                                      BIND
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519
                   119
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PF03184; DDE; 1.
; SM00674; CENPB; 1.
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                                                             97
                                                                                                      38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AL109804; CAC17547.
X05299; CAA28918.1;
                                                                                                                          36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          an email to license@isb-sib.ch).
                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17:827-837(1998)
                                                                                                     EEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQNDSQQGQLEENNNRFISVDEDSS-GNQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    requires a license agreement
                   DOESDDFDQSDDSSRED
                                        EEEEDEESSSEGLEAEDWAQGVVEAGGSFGAYGAQEEAQCPTLHFLEGGEDSDSDSEEED
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28
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41
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508
583
                                                                                                                                                                                                                                                                                                        protein;
                                                                                                                            Conservative
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                                                                                                                                                                                                                                                                                                                                                                    C:centromere; NAS.
P:chromatin binding activity; NAS.
P:satellite DNA binding activity; NAS.
P:centromere/kinetochore complex matur
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION:
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465
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593
593
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52
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535
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                                                                                                                                  Score 138; DB Pred. No. 0.11;
                                                                                                                                                                                                                                                    GLU-RICH (ACIDIC).
ASP/GLU-RICH (ACIDIC).
R -> M (IN REF. 3).
                                                                                                                                                                                                                                                                                                       protein; DNA-binding; Centromere;
                                                                                                                                                                   9B4B7DB957A914AA CRC64;
                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            domain.
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                                                                                                                                                                                                                                           (IN
                                                                                                                                             DB 1; Length 599;
                                                                                                                                                                                                                                                                                                                                                                     complex maturation; NAS
                                                                                                                                                                                                                                       . ' <u>3</u>)
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                                                                                                                           37;
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(2818]; Q03861; Q38082;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
15-SEP-2003 (Rel. 42, Last annotation update)
240 kDa protein of rod photoreceptor CNG-channel (Contains: Glutamic acid-rich protein (GARP); Cyclic-nucleotide-gated cation channel
(CNG channel 4) (CNG-4) (Cyclic nucleotide-gated cation channel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
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CNGB1 OR CNCG4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutel
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora;
Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                  Submitted (XXX-1991)
                                                                                                                                                                                                                                Sugimoto Y.,
                                                                                                                                                                                                                                                                                        cyclic nucleotide-gated cation channel."; J. Biol. Chem. 271:6349-6355(1996).
                                                                                                                                                                                                                                                                                                                  Biel M., Zong X., Ludwig A., Sautter A., Hofmann F., "Molecular cloning and expression of the modulatory
                                                                                                                                                                                                                                                                                                                                                  MEDLINE=96198098;
                                                                                                                                                                                                                                                                                                                                                                                                          "A 240 kDa protein represents the nucleotide-gated channel from rod Neuron 15:627-636(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=96009859; PubMed=7546742;
Koerschen H.G., Illing M., Seifert R., Sesti
Gotzes S., Colville C., Mueller F., Dose A.,
Kaupp U.B., Molday R.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=9913;
             -
                                                                                                                                                                                                                                               TISSUE=Retina;
                                                                                                                                                                                                                                                           SEQUENCE OF 1-590 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                 TISSUE=Testis;
                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 454-1394 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   taurus (Bovine).
                                                                                                                                                                                  imoto Y., Yatsunami K., Tsujimoto M., Khorana H.G., Ichikawa A.; attted (XXX-1991) to the EMBL/GenBank/DDBJ databases. SUBUNIT: FORMS FUNCTIONAL HETEROOLIGOMERIC CHANNELS WITH CNG3. SUBCELLULAR LOCATION: Integral membrane protein.
            TISSUE SPEC
SIMILARITY:
                                                      Name=CNG4E;
                                                                                    Name=CNG4D
                                                                                                                                                                        SUBCELLULAR LOCATION: ALTERNATIVE PRODUCTS:
                                                                                                                 Name=CNG4C
                                                                                                                                          Event=Alternative splicing; Named isoforms=3; Comment=Isoform CNG4D is the most frequent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      103
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                            IsoId=Q28181-3; Sequence=VSP_001108;
SSUE SPECIFICITY: RETINA, TESTIS, KI
                                                                     IsoId=Q28181-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MNQELLSVGSKRRRTGGSLRGNPSSSQVDEEQMNRVVEEEQQQ---
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                                                                                                  IsoId=Q28181-1;
                                                                                                                               (CNG4D: CNG4C: CNG4E
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             BELONGS
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                                                                  Sequence=VSP_001109;
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             RETINA,
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             THE CYCLIC NUCLEOTIDE-GATED
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photoreceptor.";
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de M., Molday
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cora; Bovoidea;
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Pfam; PF00520; ion trans; 1.
SMART; SM00100; cNMP; 1.
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                                                                                                                                                                                                                                                                                                                               NP_BIND
BINDING
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PROSITE; PS00889; CNMP_BINDING_2; 1.
PROSITE; PS50042; CNMP_BINDING_3; 1.
Ionic channel; Ion transport; CAMP-binding; Transmembrane;
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an email to license@isb-sib.ch).
                                                         VG--VEPRPGGQNDSQQGQLEENNNRFISVD----
 EEEEGRGKEEVEGREEEEDEEEEQDHSVLLDSYLVPQSEEDRSEESETQDQ
                   DEED --
                                       EGEEKEEEEGREKEEEEGEKKEEEGREKEEEEGGEKEDEEGREKEEEEGRGKEEEEGGEK
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590 GLUTAMIC ACID-RICH PROTEIN
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Ion_trans.
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S -> A (IN REF. 2).
R -> A (IN REF. 2).
D -> E (IN REF. 2).
A -> AA (IN REF. 2).
4 MW; EE6DA559BE3744A7
                                                                                                                     35;
                                                                                                                   Score 138.5; DE Pred. No. 0.22; 35; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                             CYTOPLASMIC (POTENTIAL) H1 (POTENTIAL).
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CAMP (BY SIMILARITY)
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E (IN REF.
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                   DFDQSDDSSREDE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wada T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=20451413; PubMed=10995512;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VARIANTS ATR-X SER-179; LEU-190; ILE-194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATR-X syndrome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lossi A.-M.,
Lacombe D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Evaluation
                                                                                                                                                                                             hemoglobin h inclusions.

DISEASE: Defects in ATRX are the cause of Carpenter-Waziri syndrome (CWS), an X-linked recessive condition characterized by moderate mental retardation, short stature, brachydactyly with excessive skin creases, and widening of the knuckles.

DISEASE: Defects in ATRX are the cause of Juberg-Marsidi syndrome (JM) [MIM:309590]. JM is a rare X-linked regestive disease characterized by severe mental retardation, growth failure, sensorineural deafness, microgenitalism and early death.

SIMILARITY: BELONGS TO THE SNF2/RAD54 HELICASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE SPECIFICITY: Ubiquitous.

DISEASE: Defects in ATRX are the cause of X-linked alpha-
thalassemia/mental retardation syndrome (ATR-X) [MIM:301040]. ATR-
X is an X-linked disorder comprising severe psychomotor
x is an X-linked disorder comprising severe psychomotor
retardation, facial dysmorphism, urogenital abnormalities, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FUNCTION: COULD BE A GLOBAL TRANSCRIPTIONAL GENE EXPRESSION BY AFFECTING CHROMATIN. MAY DEVELOPMENT AND FACIAL MORPHOGENESIS. SUBUNIT: PROBABLY BINDS EZH2. BINDS ANNEXIN
                                  1300
                                                                                                                                                                                 SIMILARITY: Contains 1 PHD-type zinc finger.
                                                                                                                                                                                                                                                                                                                                                                                                                                  paraplegia, microcephaly, short stature and cryptorchidism. DISEASE: Defects in ATRX are a cause of Smith-Fineman-Myers syndrome (SFM) [MIM:309580]. Clinical features include seve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Name=1;
IsoId=P46100-2;
                                                                                                                                                                                                                                                                                                                                                                mental retardation, microcephaly, growth failure, facial anomalies and bilateral cryptorchidism. Due to the clinical overlap with ATR-X syndrome, some patients originally diagnosed as having SFM, might be affected by a variant of ATR-X syndrome which lack
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DISEASE: Defects in ATRX are the cause of Sutherland-Haan mental retardation syndrome (SHS) [MIM:309470]. It is characterized by severe mental retardation with spastic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    erythrocyte inclusions.
DISEASE: Defects in ATR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBCELLULAR LOCATION: NUCLEAR. ASSOCIATED WITH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alpha-thalassemia. An essential phenotypic trait are hemoglobin H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Name=5
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PHOSPHATIDYLCHOLINE/PHOSPHATIDYLSERINE-DEPENDENT similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Name=4
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 51
                                                                   12
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IsoId=P46100-3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IsoId=P46100-1; Sequence=Displayed;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IsoId=P46100-5;
                                                                                                   49;
                                                                                                                 Similarity
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EHT--ARNGEVVGVEPRPGGQNDSQ---
                                  KKRTGKQNEENPG---
                                                                 RRRTGGSLRGNPSSSQVDEEQMNRV-----VEEEQQQQLRQQ--
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                                                                                              16.5%; Score 141.5;
27.4%; Pred. No. 0.2;
tive 21; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence=VSP_000574, VSP_000576;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence=VSP_000575;
                                -DEEAKNQVNSESDSDSEESKKPRYRHRLLRHKLTVSDGESGEE
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                                                                                                               .26;
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                                                                                                                               DB 1;
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MANNER
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QGQLEEN
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15-SEP-2003
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                                                                                                                                                                                             MGD; MGI:98512; Ubtf.
GG; GO:0005730; C:nucleolus; IDA.
GG; GO:0005515; F:protein binding
InterPro; IPR000910; HMG 12 box.
Pfam; PF00505; HMG box; 5.
SMART; SM00398; HMG; 6.
                                                                                                                                                                                                                                                                                                                                                                                  use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for entitles requires a license arror.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  transcription factor UBF.";
Nucleic Acids Res. 19:4631-4637(1991).
Nucleic Acids Res. 19:4631-4637(1991).
-i- FUNCTION: UBF RECOGNIZES THE RIBOSOMAL RNA GENE PROMOTER ACTIVATES TRANSCRIPTION MEDIATED BY RNA POLYMERASE I THROUCOPERATIVE INTERACTIONS WITH THE SPECIES-SPECIFIC FACTOR
       VARSPLIC
                                                                                                                                                             Transcri
                                                                                                                                                                                                                                                                                                   PIR; S22314; S22314.
HSSP; P07155; 1HMF.
                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Muramatsu M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; verteuzata; вичетеченика, Murinae; Mus. Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nucleolar transcription factor 1 UBTF OR TCFUBF OR UBF1 OR UBF-1.
                                                                                                                                                                               PROSITE; PS50118; HMG_BOX_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IsoId=P25976-2; Sequence=VSP_002194; -i- SIMILARITY: Contains 6 HMG box domains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hisatake K., Nishimura T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=91367658; PubMed=1891354;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=C3H/He
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Cloning and structural analysis of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P25976;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         UBF1 MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBUNIT: Homodimer.
SUBCELLULAR LOCATION: Nuclear.
ALTERNATIVE PRODUCTS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Name=UBF2; Synonyms=Short;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Name=UBF1; Synonyms=Long;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BINDS SPECIFICALLY TO THE UPSTREAM CONTROL ELEMENT
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                                                                                                                                                                                                                                                                                                                                     X60831;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IsoId=P25976-1; Sequence=Displayed;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81
                                                                                                                                                             ption regulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KKTKPKEHKEVKGRNRRKVSSEDSEDSDFQESGVSEEVSESEDEQRPRTRSAKKAELEEN 1415
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(Rel. 22, Last sequence update)
(Rel. 42, Last annotation update)
ranscription factor 1 (Upstream binding factor 1) (UBF-1).
        112
196
298
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e splicing. F
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257
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                                                                                                                                                               Activator; Nuclear protein;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for mouse
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ATRX_HUMA

ID ATRX

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DT 01-WC

DT 15-SE

DE TIARRE

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DE MICHE

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OC EUGAI

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=95179111; PubMed=7874112;
Stayton C.L., Dabovic B., Gulisano M., G
Giovanazzi S., Bossolasco M., Monaco L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A MEDLINE=97386582;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Transcriptional regulator ATRX (X-linked helicase nuclear protein) (XNP) (Znf-HX).
ATRX OR RAD54L OR XH2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P46100; P51068; Q15886; Q9H0Z1; Q9NTS3; 
01.NOV-1995 (Rel. 32, Created)
28.FEB-2003 (Rel. 41, Last sequence upd.
15-SEP-2003 (Rel. 42, Last annotation u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bianchi M.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 860-2492 FROM N.A.
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                                                                                                                                                                                                                           Gibbons R.J., Picketts D.J., Villard L., Higgs D. "Mutations in a putative global transcriptional "
                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=94214473; PubMed=8162050;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=97123494;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                   MEDLINE=98167853; PubMed=9499421;
Cardoso C., Timsit S., Villard L.,
                                                                                                                                                          SEQUENCE OF
                                                                                                                                                                                                                                                                SEQUENCE OF 2401-2492 FROM N.A., MEDLINE=95211835; PubMed=7697714;
                                                                                                                                                                                                                                                                                                                                                                           Millasseau
                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY PARTIAL SEQUENCE FROM N.A.
                                   Colleaux L.
                                                                                                                                           Pearce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'Cloning and characterization of a butative helicase.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATRX encodes a novel member of the SNF2 family
                                                                                                                                                                                                               inked mental retardation with alpha-thalassemia (ATR-X syndrome).";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _TaxID=9606;
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                                                                                       BINDING
                                                                                                                                                                                             80:837-845 (1995)
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                                                                                                                                                                                                                                                                                                        au P., Khrestchatisky m., control and expression of the murine homologue and expression gene closely linked to Genet. 3:39-44(1994).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genet.
interaction between the XNP/ATR-X the human EZH2 protein.";
                                                                                                                          OEC
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                                                                                                                                                           1375-2492 FROM
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                                                                                                                                                                                                                                                                                                                                                                           rd H., Consalez G.,
Khrestchatisky M.,
                                                                                                                          -2000)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mechanism underlying the
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                                                                                                                          to the EMBL/GenBank/DDBJ databases
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                                                                                                                                                           N.A.
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••
                                                   Khrestchatisky M.,
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                gene
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S., Boncine
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                product and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene, encoding
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; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Boncinelli
                                                                                                                                                                                                                                                                                                                                        putative human in Xq13.3.";
                                                                                                                                                                                                                                                                                                                                                                                            C.L.,
                                                   Fontes M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mutations
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   Hum. Mol. Genet. 7:679-684(1998)
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                                                                                                                        Curtis M.;
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Villard L., Fontes M., Ades L.C., Gecz J.;
"Identification of a mutation in the XNP/ATR-X gene
reported as Smith-Fineman-Myers syndrome.";
Am. J. Med. Genet. 91:83-85(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        McDowell T.L., Gibbons R.J., Sutherland H., O'Rourke I
Bickmore W.A., Pombo A., Turley H., Gatter K., Pickett
Buckle V.J., Chapman L., Rhodes D., Higgs D.R.;
"Localization of a putative transcriptional regulator
                                                                                                                                                                                                                                                                                                                                                                                          VARIANT SHS LYS-1742.
MEDLINE=99347960; PubMed=10417298;
Lossi A.-M. Millan J.M., Villard L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=20123062; PubMed=10660327;
Fichera M., Romano C., Castiglia L., Failla P., Ruberto (
Greco D., Cardoso C., Fontes M., Ragusa A.;
"New mutations in XNP/ATR-X gene: a further contribution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gibbons R.J., Bachoo S., Picketts D.J., Aftimos S., Asenbauer
Bergoffen J., Berry S.A., Dahl N., Fryer A., Keppler K., Kuro
Levin M.L., Masuno M., Neri G., Pierpont M.E., Slaney S.F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Munnich A., Lyonnet S.;
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                                                                                                                                                                                                                                                                                                          prieto F., Fontes M., Martinez F.; "Mutation of the XNP/ATR-X gene in a family with retardation, spastic paraplegia and skewed patter demonstration that the mutation is involved in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genotype/phenotype relationship in ATR/X syndrome.
Hum. Mutat. 12:214-214(1998).
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Villard L., Gecz J., Mattei J.-F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=97196774; PubMed=9043863;
Villard L.; Lacombe D., Fontes M.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUBCELLULAR LOCATION, AND ASSOCIATION WITH
                                                                                                                                                                            Abidi F., Schwartz C.E:,
                                                                                                                                                                                                   MEDLINE=99326061; PubMed=10398237;
                                                                                                                                                                                                                     VARIANT CWS THR-2050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VARIANT JM GLN-2131.
                                                                VARIANTS ATR-X GLU-175; 178-VAL--LYS-198
                                                                                                                                     "Carpenter-Waziri syndrome
                                         EU-246 AND CYS-249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hum. Genet. 4:316-320(1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATR-X LEU-246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     e of a PHD-like do
17:146-148(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12:359-360(1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Acad. Sci. U.S.A.
                                                                                                                                                                                                                                                                 Genet.
    Bonino M.-C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         transcriptional regulator ATRX establish the functional of a PHD-like domain.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               in a large family with Juberg-Marsidi syndrome.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PubMed=10570185;
PubMed=10204841;
Abidi F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PubMed=9326931;
                                                                                                                                                                                                                                                                   65:558-562 (1999)
                                                                                                              85:249-251 (1999)
                                                                                                                                                                            Carpenter
                                                                                                                                     results
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96:13983-13988(1999)
                                                                                                                                                                            N.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                associated with
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                                                                                                                                     from
    Ragusa
                                                                                                                                                                                                                                                                                                                                                                                                      Orellana
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                                                                       DEL;
                                                                                                                                                                                Villard
                                                                                                                                     mutation
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d in the
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  Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        O'Rourke D.M.,
K., Picketts D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Saugier-Veber P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             arms
                                                                       SER-190; PRO-219;
                                                                                                                                                                                                                                                                                                                                                                                                      ი
,
    Belougne J.,
                                                                                                                                                                                                                                                                                                                                   severe
                                                                                                                                                                                L., Fontes
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                                                                                                                                       XNP.";
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inactivation:
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YEQDERDQKEEGNDYDTRSEASDSGSESVSFTD

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RESULT 11
UBF1 RAT
ID UBF1
AC P2597
DT 01-MAC
DT 01-MAC
DT 15-SE
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Best Local S
Matches 42
 UBF1_RAT S
P25977; P25978;
01-MAY-1992 (Rel
01-MAY-1992 (Rel
15-SEP-2003 (Rel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JO-MAY-2000 (Rel. 39, Last sequence update)
Mitotic apparatus protein P62.
Lytechinus pictus (Painted sea urchin).
Eukaryota; Metazoa; Echinodermata.
                                                                                                                                                                                                                                                                                                                                               DOMAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for com
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MP62_LYTPI
P91753;
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                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; U76750; AAB47481.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam; PF03066; Nucleoplasmin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           required for mitotic progression."
J. Biol. Chem. 272:3606-3614(1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Molecular characterization of p62, a mitotic apparatus required for mitotic progression.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yе х.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=97166213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=7653;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      interPro; IPR004301; Nucleoplasmin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ytechinus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUBCELLULAR LOCATION: Nuclear.
PTM: PHOSPHORYLATED BY CAM-KINASE II IN VITRO.
SIMILARITY: BELONGS TO THE NUCLEOPLASMIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION: REQUIRED FOR MITOTIC PROGRESSION. BINDS
                                                                                                                                                                               207
                                                                                                                                                                                                                                      155
                                                                                                                                                                                                                                                                                          l Similarity
42; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sloboda R.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                protein;
                                                                                                                                                                              KK----RPAPSAKGPAKKLAKVDKDGTSKRKVPNGSVE--NGHAIDDDEDDEEDEDYKVG
                                                                                                                                                                                                                                                   QELLSVGSKRR-----RTGGSLRGNPSSSQVDEEQMNRVVEEEQQQQLRQQEEEHTARN 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           requires a license agreement
                                                                                                                         DEEEEEATSGEEEEEDEEEEEEEDDEEMALGDDDDEDDDEEDDE
                                                                                                                                                   BEQEEDEEHAGEQDEEDEEEEEMDQESD----DFDQSDDSSREDE 136
                                                                                                                                                                                                         GEVVGVEPRPGGQNDSQQ-------GQLEENNNRFISVDEDSSGNQ-----
                                                                                                                                                                                                                                    EETPKKGSPKRIVKKIAAVKGRMKG--KGDELDED-----EDDDEEEEEEEEIQTAKG
  (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                           Conservative
                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                           ; Phosphorylation; Mitosis.
156 POLY-GLU.
200 POLY-GLU.
267 POLY-GLU.
284 POLY-GLU.
300 POLY-ASP.
319 POLY-GLU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PubMed=9013612;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Echinodermata; Eleutherozoa; Echinozoa;
oidea; Echinacea; Temnopleuroida; Toxopneustidae;
                                                                                                                                                                                                                                                                                                                                                 46385
                                                                                                                                                                                                                                                                                                      16.8%;
Last sequence update)
Last annotation update)
                            Created)
                                                                                                                                                                                                                                                                                                                                               MΨ;
                                                                                                                                                                                                                                                                                        Score 144.5; DB Pred. No. 0.031; 3; Mismatches 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                               D2DE04293C362254 CRC64;
                                                        764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         noved. Usage by and for (See http://www.isb-sib.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                        B
                                                                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                           45;
                                                                                                                                                                                                                                                                                                                   Length 411;
                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TO CHROMATIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                        45;
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Best Local S
Matches 42
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DNA_BIND
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                                                                                                                       SEQUENCE
                                                                                                                                                                                                                               Repeat;
                                                                                                                                                                                                                                                     SMART; SM00398; HMG; 6
PROSITE; PS50118; HMG
                                                                                                                                                                                                                                                                                              PIR; A40439; A40439.
PIR; B40439; B40439.
HSSP; P07155; 1HMF.
                                                                                                                                                                                                                                                                                                                              EMBL; M61726; -; NOT_ANNOTATED_CDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Name=UBF2; Synonyms=Short;
IsoId=P25977-2; Sequence=VSP_002195;
-i- SIMILARITY: Contains 6 HWG box domains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. (UBF1 AND UBF2).
MEDLINE=91195316; PubMed=2014238;
O'Mahony D.J., Rothblum L.I.;
                                                                                                                                              VARSPLIC
                                                                                                                                                                                                                                                                          Pfam; PF00505; HMG_box;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBUNIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=99199559; PubMed=10099786;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nattus norvegicus (Rat).
                                                                                                                                                                             DNA BIND
                                                                                                                                                                                                                                                                                    interPro; IPR000910; HMG_12_box.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                factor UBF."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Identification of two forms of the RNA polymerase I transcription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleolar transcription factor 1 (Upstream binding factor 1) (UBF-1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Name=UBF1; Synonyms=Long;
IsoId=P25977-1; Sequence=Displayed;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBCELLULAR LOCATION: Nuclear.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALTERNATIVE PRODUCTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Event=Alternative splicing; Named isoforms=2;
                                  593 LKERMVEIGSRWQRI------
                                                                                      Similarity
                                                                                                                                                                                                                               Alternative
MNQELLSVGSKRRRTGGSLRGNPSSSQVDEEQMNRVVEEEQQQ
                                                                                                                      764
                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Acad. Sci. U.S.A.
                                                                                                                                                                                                                                            regulation;
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A
                                                                                                                                                                                                                                splicing.
                                                                                                                      89437 MW;
                                                                                      16.5%;
23.9%;
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                                                                                                                                                                                                                                                     BOX_2; 6.
                                                                                                                                                                                                                                          DNA-binding;
                                                                          35;
                                                                          Score 141.5;
Pred. No. 0.08
35; Mismatches
                                                                                                                                                                 HMG BOX 2.
HMG BOX 3.
HMG BOX 4.
HMG BOX 5.
HMG BOX 6.
                                                                                                                                ASP/GLU/SER-RICH (ACIDIC)
Missing (in isoform UBF2)
/FTId=VSP_002195.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88:3180-3184(1991)
                                                                                                                     E9D3371615DB0534 CRC64;
                               SOSOKEHYKKLAEEOOROYKVHLDLWVKSLSPODR
                                                                                                                                                                                                                                                                                                                                                                           (See http://www.isb-sib.
                                                                                                                                                                                                                                           Activator; Nuclear protein;
                                                                                      .084;
                                                                                              DB 1;
                                                                          56;
                                                                                               Length
                                                                            Indels
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THROUGH
PACTOR SL1.
                                                                                               764;
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                                                                          43;
                                                                                                                                                                                                                                                                                                                                                                                                                      a collaboration -
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RESULT 9
S521_RAT
ID S521
AC Q9QY
DT 28-F
'DT 28-F
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Best Local
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"S521 RAT S
Q9QY02; O54729;
28-FEB-2003 (Rel
28-FEB-2003 (Rel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIR; S60416; S60416.
SGD; S0003118; INO80.
GO; GO:0016855; C:chromatin remodeling complex;
GO; GO:0016887; F:ATPase activity; IDA.
                                                                                                                                                                                                                                                                                                                             DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; Z48618; CAA88537.1; -.
EMBL; Z72672; CAA96861.1; -.
EMBL; X99960; CAA68224.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAD54, ACE1/CUP2, PMR1,
Yeast 11:1413-1419(1995)
                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                   SMART; SM00490; HELICC;
                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00271; helicase
Pfam; PF00176; SNF2_N; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
InterPro; IPR000330; SNF2_N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or send
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a c
between the Swiss Institute of Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIP1, MRF1 genes and six new open reading Yeast 13:177-182(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Voet M., Defoor E., Verhasselt P., Riles L., Robben J., Volckaert "The sequence of a nearly unclonable 22.8 kb segment on the left chromosome VII from Saccharomyces cerevisiae reveals ARO2, RPL9A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=97197983; PubMed=9046099;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN=S288C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                      NP_BIND
                                                                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
                                                                                                                                                                                                                                                                                                                                                                          ATP-binding.
                                                                                                                                                                                                                                                                                                                                                                                   Hypothetical protein; Nuclear protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- SUBCELLULAR LOCATION: Nuclear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ween the Swiss Institute of Bioinformat
European Bioinformatics Institute. The
by non-profit institutions as long
ified and this statement is not removed.
ities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GO:0006366; P:transcription from Pol II promoter; IDA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GO:0006338; P:chromatin mode.
GO:0006281; P:DNA repair; ID
                                                                                                                  116
                                                                                           268
                                                                                                                                        208
                                                                                                                                                                                     159
                                                                                                                                                               56
                                                                                                                                                                                                                                   46;
                                                                                                                                                                                                                                                                                                                                                                                                             SM00487; DEXDc; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             an email to license@isb-sib.ch).
                                                                                                                                                                                                                                              Similarity
                                                                                                                 EEMDQES-DDFDQSDDSSRED--
                                                                                                                                                            NGEVVGVEPRPGGQNDSQQGQLEENNNRFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEE
                                                                                                                                                                                     MEEDEASTG--RHTNGKSMRGNGIQKSRKKDAAAAAIGKAIKDDQ-
                                                                                                                                                                                                           MNQELLSVGSKRRRTGGSLRGN--PSSSQVD----EEQMNRVVEEEQQQQLRQQEEEHTAR
                                                                                         EDIDEEDFAAFEEQDONDDEDFNPDVEKRKKS-SSSSSSKLSMNSLS
                                                                                                                                         VVTVNGDENEDGNNGEDEDNDNDNENNNDNDNENENDNDSDNDDEEENGEEDEEEEI
                                                                                                                                                                                                                                                                               .841
1489
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259
300
568
675
731
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(Rel. 41, Created)
(Rel. 41, Last sec
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                                  STANDARD;
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                                                                                                                                                                                                                                                                                           844
                                                                                                                                                                                                                                                                                                      193
268
306
573
682
738
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27.2%;
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                                                                                                                                                                                                                                  30;
                                                                                                                                                                                                                                                                                MW;
sequence update)
                                                                                                                                                                                                                                             Score 145.5;
Pred. No. 0.0
                                                                                                                                                                                                                                                                                                                            POLY-GLU.
POLY-SER.
POLY-GLU.
                                                                                                                                                                                                                                                                                                       ATP
                                                                                                                                                                                                                                                                                           DEAQ
                                                                                                                                                                                                                                                                                                                   POLY-GLU
                                                                                                                                                                                                                                                                                                                                                               POLY-ALA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IDA
                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ear (Potential).
SNF2/RAD54 HELICASE FAMILY.
                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ling; IDA.
                                                                                                                                                                                                                                                                               ) BOX.
017053C5A245337E CRC64;
                                                                                                                                                                                                                                                                                                      (POTENTIAL).
                                                                                                                  EHTHTNSVTNSSSIVDLPVHQLS
                                  738
                                                                                                                                                                                                                                                                                                                                                                                      DNA-binding; Helicase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           There are no
                                                                                                                                                                                                                                             .092;
                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            frames.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                                                                70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Usage
                                                                                                                                                                                                                                                       Length 1489
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           restrictions
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a collaboration -
                                                                                                                                                                                       ----THADT
                                                                                           315
                                                                                                                  158
                                                                                                                                                                                                                                  23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 left arm
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MEDLINE=98141887; PubMed=94735/*;
Imai Y., Matsuo N., Ogawa S., Tohyama M., Takagi T.;
Imai Y., Matsuo N., Ogawa S., Tohyama M., Takagi T.;
"Cloning of a gene, YT521, for a novel RNA splicing-related protein "Cloning of a gene, YT521, for a novel RNA splicing-related protein induced by hypoxia/reoxygenation.";
induced by hypoxia/reoxygenation.";
Prain Res. Mol. Brain Res. 53:33-40(1998).
                                                                                                                                                                                                                                                                                                                                                                         we by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/annown-corsend an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               influences splice site selection.
-!- SUBUNIT: Interacts with SFRS10/RA301, SC35,
-!- SUBCELLULAR LOCATION: Nuclear; nucleoplasm
-!- ALTERNATIVE PRODUCTS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=20032183; PubMed=10564280;
Hartmann A.M., Nayler O., Schwalger F.W., Obermeier A., Stamm S
"The interaction and colocalization of Sam68 with the splicing-
associated factor YT521-B in nuclear dots is regulated by the S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-SEP-2003 (Rel. 42, Last annotation update)
Putative splicing factor YT521 (RA301-binding protein)
                                                                                                                                                                                                                                                                                                                                                   Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. (ISOFORM 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -!- FUNCTION: May be part of a signal transduction pathway that
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=10116;
                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                         VARSPLIC
                                                                                                                                                                                                                                                     VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       family kinase p59fyn.";
Mol. Biol. Cell 10:3909-3926(1999).
                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                       Nuclear
                                                                                                                                                                                                                                                                                                                                     PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY: Contains 1 YTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE SPECIFICITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Name=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Event=Alternative splicing; Named isoforms=2; Name=1; Synonyms=YT521-B; IsoId=Q9QY02-1; Sequence=Displayed;
                           193
  120
                                                                                                                                                                                                                                                                                                                                                  AF144731; AAD
PF04146; YTH;
                                                       74
                                                                                                               14
                                                                                                                                           44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              soId=090Y02-2; Sequence=VSP_006819,
                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                       protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tyrosine-phosphorylated
 QESDDFDQSDDSSREDEHTH-TNSVTNSSSIVD 151
                                                                                                                                                                                                                                                                                                                                      PSS0882;
                           RKRDSERRAKSPTPDGSERIGLEVDRRASRSSQSSKEE----GNSEEYGSDHETGSSASSE
                                                                                                            RTGGSLRGNPSSSQVDEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQNDSQ
                                                                                                                                                                                               738
                                                                                                                                                                                                                           577
                                                                                                                                           Conservative
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                                                                                                                                                                                                                                                                                                                                                                  AAD55973.1;
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pa; Chordata;
ia; Rodentia;
                                                                                                                                                                                                                                                                                                                       mRNA splicing; Alternative splicing; Phosphorylation.
                                                                                                                                                                                                                                                                                                                                      YTH; 1.
                                                                                                                                                                                                                                                   263
654
738
345
                                                                                                                                                                                                                           584
                                                                                                                                                                                               85825
                                                                                                                                                     16.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ubiquitous.
                                                       NRFISVDEDSSGNO-----EEQEEDEEHAGEQDEEDEEEEEMD 119
                                                                                                                                                                                                MW.
                                                                                                                                         25;
                                                                                                                                                                                                                                     GLU-RICH.
PRO-RICH.
ARG-RICH.
ARG-RICH.
Missing (in isoform 2)
/FTId=VSP_006819.
                                                                                                                                                      Score 145; DB 1
Pred. No. 0.051;
                                                                                                                                                                                              Missing (In isoform 2).
/FTId=VSP_006820.
; 220D0CD8A22A77FD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       domain
                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VSP_006820;
                                                                                                                                                                   <u>ب</u>
                                                                                                                                           66;
                                                                                                                                                                  Length 738;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a collaboration -
                                                                                                                                           18;
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                                                                                                                                           Gaps
                                                                                                               73
                                                                                     192
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RA Deloukas P., Matthews L.H., Ashurst J., Burton J., Gilbert J.G.R., RA Jones M., Stavrides G., Almeida J.P., Babbage A.K., Bagguley C.L., RA Bailey J., Barlow K.F., Bates K.M., Beard L.M., Beare D.M., RA Beasley O.P., Bird C.P., Blakey S.E., Bridgeman A.M., Brown A.J., RA Buck D., Burrill W.D., Butler A.P., Carder C., Carter N.P., Clark D.C., Clamp M., Clark G., Clark L.N., Clark S.Y., Clee C.M., RA Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R., RA Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R., RA Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R., RA Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R., RA Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R., RA Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R., Hall R.E., RA Lington A.G., Frankland J.A., Fraser A., French L., Garner P., RA Ellington A.G., Frankland J.A., Fraser A., French L., Garner P., RA Hammond S., Harley J.L., Heath P.D., Ho S., Holden J.L., Howden P.J., RA Huckle E., Hunt A.R., Hunt S.E., Jekosch K., Johnson C.M., Johnson D., RA Kay M.P., Kimberley A.M., King A., Knights A., Laird G.K., Lawlor S., RA Lehvaeslahho M.H., Leversha M.A., Lloyd C., Lloyd D.M., Lovell J.D., RA Lehvaeslahho M.H., Leversha M.A., Lloyd C., Lloyd D.M., Lovell J.D., RA Milne S.A., Mistry D., Moore M.J.F., Mullikin J.C., Nickerson T., RA Milne S.A., Mistry D., Moore M.J.F., Mullikin J.C., Nickerson T., RA Milne S.A., Mistry D., Frathalingam S.R., Plumb R.W., Ramsay H., RA Rice C.M., Ross M.T., Scott C.E., Sehra H.K., Shownkeen R., Sins S., Swann R.M., Synamore N., Taylor R., Tee L., Thomas D.W., Thorpe A., RA Milnend S.L., Whittaker P., Willey D.L., Williams L., Williams S.A., Wilning L., Williams S.A., Milning L., Williams S.A., Milning L., Williams S.A., Milning D.L., Whollams D.L., Williams S.A., Milning D.L., Williams S.A., Williams S.A., Williams S.A.
                                                                                                                                                                                                                                                                                                                                                                                Kim J.G., Hudson L.D.;
"Novel member of the zinc finger suprecognizes a glia-specific gene.";
Mol. Cell. Biol. 12:5632-5639(1992).
-!- FUNCTION: BINDS TO THE PROMOTER
OF THE CENTRAL NERVOUS SYSTEM.
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A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=99397452; PubMed=10470851;
Kikuno R., Nagase T., Ishikawa K.-I., Hiro
Tanaka A., Kotani H., Nomura N., Ohara O.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Prediction of the coding sequences of unidentified human genes. XIV The complete sequences of 100 new cDNA clones from brain which code for large proteins in vitro.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wilming
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=99156230; PubMed=10048485;
Nagase T., Ishikawa K.-I., Suyama M., Kikuno R., Hi
Miyajima N., Tanaka A., Kotani H., Nomura N., Ohara
"Prediction of the coding sequences of unidentified
The complete sequences of 100 new cDNA clones from I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=93078764;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE=Brain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 293-1121 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "The DNA sequence and comparative analysis of human Nature 414:865-871 (2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=21638749;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
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                                                                                                                                                                                                                                        SUBCELLULAR LOCATION: Nuclear.
TISSUE SPECIFICITY: MOSTLY IN DEVELOPING NERVOUS SYSTEM DOMAIN: CONTAINS 7 ZINC PINGERS OF THE C2HC CLASS ARRANG TWO WIDELY SEPARATED CLUSTERS. THESE TWO DOMAINS OF DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      large proteins in vitro.";
les. 5:355-364(1998).
                                                                                                                                                                                                    FUNCTION INDEPENDENTLY AND RECOGNIZE THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         L., Wray
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PubMed=1280325;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hubbard T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                superfamily:
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                                                                                                                                                                                                                                                                                                                                                                                                                                    REGIONS
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                                                                                                                                                                                                                                                                                                                                                                                                                                OF.
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                                                                                                                                                                                                                                                                                                                                                                                                                                PROTEOLIPID PROTEINS
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                                                                                                                                                                                                SAME DNA SEQUENCE.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             chromosome 20.";
                                                                                                                                                                                                                                        S ARRANGED IN OF DNA BINDING
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                                                                                                                                                                                 YEAST
YGP0_1
(1)
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE=99158061; PubMed=8585324;
James C.M., Indge K.J., Oliver S.G.;
"DNA sequence analysis of a 35 kb segment
"DNA '-in chromosome VII reveals 19 open
                                                                                                                                      P53115;
01-OCT-1996
01-OCT-1996
16-OCT-2001
                                                                                                                  01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last seque
16-OCT-2001 (Rel. 40, Last annot
Hypothetical 171.5 kDa helicase
YGL150C OR G1880.
                                                                                                                                                                                                                                                                                                                                                                                                                   CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                        CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GO; GO:0005634;
GO; GO:0003700;
GO; GO:0008270;
                                                                                   Saccharomyces cerevisiae (Bake
Eukaryota; Fungi; Ascomycota;
Saccharomycetales; Saccharomyc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Repeat.
ZN FING
ZN FING
ZN FING
ZN FING
ZN FING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; AB020642; BAA74858.1; -. EMBL; AL121581; CAC17005.1; -. EMBL; AB028973; BAA83002.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       modified
entities
                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MIM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZN_FING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR002515; Znf_C2HC. Pfam; PF01530; zf-C2HC; 7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>છ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSFAC; T04937; -.
Genew; HGNC:7622; MYT1.
GK; Q01538; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Transcription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or send
                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GO:0006355;
                                                                                                                                                                                YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600379;
                                                                                                                                                                                                                                                                                                                                           29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         M96980; AAA59897.1;
                                                                                                                                                                                                                                                                                                                                                                40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d and this statement is not remove requires a license agreement (S an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                             ---DEEBEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEAAPDVIFQEDTSHTSAQKAPELRG
                                                                                                                                                                                                                                                                                               ISVDEDSSGNOEEQEEDEEHAGEQDEEDEEEEEMDQESDD--FDQ--
                                                                                                                                                                                                                                                                                                                     DAEEVVEVTTERSODLCPOSLEDAASEESSKOKGILSHE----EEDEEEEEEEEEEE-
                                                                                                                                                                                                                                                                                                                                          DEEQMNRVVEEEQQ----
                                                                                                                                                                                                                                   PESPSPKPEYSVIVEVRSDDDKDEDTHSRKSTVTDESEMQDM
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943
957
1075
1088
1102
1121
                                                                                                                                                                                                                                                                                                                                                                Conservative
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                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C:nucleus; NAS.

F:transcription factor activity; NAS.

F:zinc ion binding activity; NAS.

P:regulation of transcription, DNA-dependent; NAS.
                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                  Saccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            837
943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     466
510
851
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944
997
574
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AN -> TI (IN REF. 4).

AN -> TI (IN REF. 4).

R -> H (IN REF. 4).

DA -> VP (IN REF. 4).

D -> A (IN REF. 4).

D -> A (IN REF. 4).
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                                                                                                        (Baker's
                                                                                                                                                                                                                                                       SDDSSREDEHTHTNSVTNSSSIVDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zinc-finger; DNA-binding; Nuclear protein;
                                                                                                                                      sequence update)
                                                                                                                                                                                                                                                                                                                                         QQLRQQEEEHTARNGEVVGVEPRPGGQNDSQQGQLEENNNRF
                                                                                                                                                                                                                                                                                                                                                                28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C2HC-TYPE.
C2HC-TYPE.
C2HC-TYPE.
                                                                                                                                                                                                                                                                                                                                                                         Score 146.5;
Pred. No. 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C2HC-TYPE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATPRANLA -> RHTQGQLG (IN REF. 4).
C -> SKPFPKASSPRHSPSSSYVRSTSSSSAG
                                                                                             er's yeast).
Saccharomycotina;
                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                             ion update)
                                                                                                                                                                                1489
                                                                                    Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                        .062;
         from Saccharomyces reading frames inc
                                                                                                                                                                                                                                                                                                                                                                                   BB
                                                                                                                           intergenic region
                                                                                                                                                                                                                                                                                                                                                                47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Usage
                                                                                                                                                                                                                                                                                                                                                                                   1;
                                                                                              Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                         CRC64;
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          including
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RESULT
UBF1_HU
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   use by non-profit institutions as long as its cont modified and this statement is not removed. Usage by entities requires a license agreement (See http://www.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-AUG-1990 (Rel. 15, Created)
01-AUG-1990 (Rel. 15, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
Nucleolar transcription factor 1 (Upstream bid)
(Autoantigen NOR-90).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P17480;
01-AUG-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Initiation factor; Protein biosynthesis.

DOMAIN 1 188 ASP/GLU/SER-RICH.

CONFITCT 683 683 M -> I (IN REF. 2).
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Pfam; PF01399; PCI; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR; T38786; T38786.
PIR; T42417; T42417.
                                          Chan E.K.L., Imai H., Hamel J.C., Tan E.M.;

"Human autoantibody to RNA polymerase I transcription factor hUBF.

Molecular identity of nucleolus organizer region autoantigen NOR-90
and ribosomal RNA transcription upstream binding factor ";

J. Exp. Med. 174:1239-1244(1991).

-i- FUNCTION: RECOGNIZES THE RIBOSOMAL RNA GENE PROMOTER AND ACTIVATES
TRANSCRIPTION MEDIATED BY RNA POLYMERASE I THROUGH COOPERATIVE
INTERACTIONS WITH THE SPECIES-SPECIFIC FACTOR S11. IT BINDS
SPECIFICALLY TO THE UPSTREAM CONTROL ELEMENT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or send
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAMUH
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GeneDB_SPombe; SPAC4A8.16c;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                     with homology to HMG prot
Nature 344:830-836(1990).
                                                                                                                                                                                                                                                                                                                                                                          MEDIINE=90231434; PubMed=2330041;
Jantzen H.M., Admon A., Bell S.P., Tjian R.;
"Nucleolar transcription factor hUBF contains
with homology to HMG proteins.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens (Human)
                                                                                                                                                                                                                                                                      MEDLINE=92044316; PubMed=1940801;
                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.' (UBF2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Autoantigen
JBTF OR UBF1
SUBCELLULAR LOCATION: Nuclear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119
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Z98599; CAB11250.2; -.
D89140; BAA13802.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AL355013; CAB90146.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
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36; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SM00088; PINT; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ESESEEESDESERSGPSSFLKKPEKEEAKP 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SSREDEHTHTNSVTNSSSIVDLPVHQLSSP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGSLRGNPSSSQVDEEQMNRVV-----EEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQN 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ESEESEVEVPKKKAVAASEDSESDSESSEEEEETESEEDSEVSDESESESESE--SESEE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           918 AA; 104367 MW; 43B70599409688EF
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OR UBF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17.4%;
24.0%;
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Pred. No. 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Craniata; Vertebrata; l
Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CRC64;
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   SCHOOL
                                                                                                                                                                RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transcription regulation; DNA-binding; Activator; Nuc
Repeat; Alternative splicing; 3D-structure.
DNA BIND 112 180 HMG BOX 1.
DNA BIND 196 264 HMG BOX 3.
DNA BIND 298 362 HMG BOX 3.
DNA BIND 407 475 HMG BOX 4.
DNA BIND 407 475 HMG BOX 4.
DNA BIND 568 634 HMG BOX 6.
                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
           HUMAN STANDAKU;
MYT1 HUMAN STANDAKU;
Q01538; O94922; Q9UPV2;
Q1-UUL-1993 (Rel. 26, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Myelin transcription factor 1 (MYT1) (MYTI) (
Linding protein) (PLPB1). MYTI OR KIAA0835 OR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; X53390; CAA37469.1; -. EMBL; X53461; CAA37548.1; -. CAA40016.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00505; HMG box; 5.
SMART; SM00398; HMG; 6.
PROSITE: DECONO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          modified and this statement is not removentities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GO; GO:0003701; F:RNA polymerase I transcription factor activity; TAS. GO; GO:0006356; P:regulation of transcription from Pol I prom. . .; TAS. InterPro; IPRO00910; HMG_12_box.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR; S09318; S09318.
PIR; S18193; S18193.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a coefficient the Swiss Institute of Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IsoId=P17480-2; Sequence=VSP_002193;
-!- SIMILARITY: Contains 6 HMG box domains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genew; HGNC:12511; UBTF.
binding protein) (PLPI MYT1 OR PLPB1 OR MTF1 Homo sapiens (Human).
                                                                                                                                                  HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSFAC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Event=Alternative splicing; Named isoforms=2; Name=UBF1; Synonyms=Long; IsoId=P17480-1; Sequence=Displayed;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Name=UBF2; Synonyms=Short; IsoId=P17480-2; Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ALTERNATIVE PRODUCTS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1K99; 04-DEC-02.
SFAC; T02900; -.
                                                                                                                                                                                                                                                                                                                                               593
                                                                                                                                                                                                                699
                                                                                                                                                                                                                                                103
                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pean Bioinformatics Institute. There are no restrictions non-profit institutions as long as its content is in and this statement is not removed. Usage by and for compremites a license.
                                                                                                                                                                                                                AAYKEYISNKRKSMTKLRGPNPKSSRTTLQSKSESEEDDEE---
                                                                                                                                                                                                                                                                                                            QQEEEHTARNGEVV----
                                                                                                                                                                                                                                                                                                                                                                            MNQELLSVGSKRRRTGGSLRGNPSSSQVDEEQMNRVVEEEQQQ------QLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              764 AA;
                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              89406
                                                                                                                                                                                                                                                                                                                                                                                                                              17.1%;
23.2%;
                                                                                                                                                                                                                                           EHAGEQDEEDEEEEMDQESDDFDQSDDSSREDEHTHTNSVTNSS 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MW.
                                                                                                                                                                                                                                                                                                                                                                                                                35,
                                                                                                                                                                                                                                                                                                          -GVEPRPGGQNDSQQGQLEENNNRFISVDEDSSGNQEEQEEDE 102
                                                                                                                                                                                                                                                                                                                                                                                                               Score 147; DB 1;
Pred. No. 0.04;
5; Mismatches 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HMG BOX 6.
ASP/GLU/SER-RICH (ACIDIC)
Missing (in isoform UBF2)
/FTId=VSP_002193.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D4F0F8BB180E757D
                                                                                                                                                                                                                                                                                                                                                 -ŚQSQKEHYKKLAEEQQKQYKVHLDLWVKSLSPQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (See http://www.isb-sib.ch/announce/
                    OR KIAA1050
                                                                                                                                                                                                                                                                                                                                                                                                                57;
                                                    (Proteolipid protein
                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 764;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nuclear protein;
                                                                                                                                                                                                                                                                                  -DEDDEDEDEEEEDDE
                                                                                                                                                                                                                                                                                                                                                                                                                  44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 commercial
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                                            Query Match
Best Local S
Matches 41
                                                                                                                                                                               HSSP; PO7199; 1BW6.
HSSP; PO7199; 1BW6.
InterPro; IPR004875; CENP-B.
InterPro; IPR006600; CENPB.
Pfam; PF04218; CENP-B N; 1.
Pfam; PF03184; DDE; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CENB_CR:
                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bejarano L.A., Valdivia M.M.;
"Molecular cloning of an intronless gene antigen CENP-B.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cricetulus griseus (Chinese hamster).
Eukaryota; Metazoa; Chordata; Craniat
Mammalia; Eutheria; Rodentia; Sciurog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Major centromere autoantigen B (Centromere protein
                                                                                                                                              Chromosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRIGR
                                                                                                     SEQUENCE
                                                                                                                  DOMAIN
                                                                                                                                                                            SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cricetulus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CENPB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=96254058; PubMed=8652663;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                 Chim. Biophys. Acta 1307:21-25(1996).

FUNCTION: INTERACTS WITH CENTROMERIC HETEROCHROMATIN IN FUNCTION: INTERACTS WITH CENTROMERIC SUBSET OF ALPHOID SATELLITE CHROMOSOMES AND BINDS TO A SPECIFIC SUBSET OF ALPHOID SATELLITE DAR, CALLED THE CENT-B BOX. MAY ORGANIZE ARRAYS OF CENTROMERE SATELLITE DNA INTO A HIGHER ORDER STRUCTURE WHICH THEN DIRECTS CENTROMERE FORMATION AND KINETOCHORE ASSEMBLY IN MAMMALIAN CHROMOSOMES (BY SIMILARITY).

SUBCULT: Homodimer (By similarity).

SUBCULTULAR LOCATION: Nuclear.
                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY: Contains 1 CENPB domain.
                                                                                                                                                                                                                                                            S70358; S70358.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TaxID=10029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CRIGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116
 16 GGSLRGNPSSS----QVDEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQND 71
                                                                                                                                                                                                                                                                            U20951; AAB06494.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83
                                                                                                                                                                          SM00674; CENPB; 1.
                                            41;
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                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EEMDQESDDFDQSDDSSREDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NGEVVGVEPRPGGQNDSQQGQLEENNNRFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EEEAEEAEEAEEAEEAE 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QELLSVGSKRRTG------GSLRGNPSSSQVDEEQMNRVVEEEQQQQCLRQQEEEHTAR
                                                                                                     909
                                                                                                                                                          protein;
                                              Conservative
                                                                                                                  510
                                                                                                     ΑĄ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                  471
545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chordata; Craniata; Vertebrata; Euteleostomi; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                         17.4%;
25.2%;
                                                                                                     66407 MW;
                                                                                                                Nuclear protein; DNA-binding; Centromere.

SystMiLARITY.
GLU-RICH (ACIDIC).

ASP/GLU-RICH (ACIDIC).
                                           22;
                                                         Score 149.5;
Pred. No. 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                136
                                                                                                   63D0EEEE5551D48E
                                           Mismatches
909
                                                         .023;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for the hamster centromere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                     DB 1;
=
                                            47; Indels 53;
                                                                                                     CRC64;
                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (CENP-B).
                                                                       606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SATELLITE
                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     115
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RESULT
IF38_SC
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                                                                                                                                                                                                                                                                                                                                                                         RA Wood V. Gwilliam R., Hayles J., Baker S., Basham D., Bowman S., Stewart A., RA Sgouros J., Peat N., Hayles J., Baker S., Basham D., Bowman S., RA Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M., RA Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M., Collins M., Connor R., Cronin A., Davis P., Fellwell T., Fraser A., RA Collins M., Connor R., Cronin A., Davis P., Fellwell T., Fraser A., RA Holroyd S., Hornsby T., Howarth S., Huckle E.J., Hunt S., Jagels K., Janes K., Jones M., Leather S., McDean J., Jagels K., Janes K., Jones M., Leather S., McDean J., Colliver K., O'Neil S., Pearson D., Quail M.A., Rabbinowitsch E., RA Mooney P., Moule S., Mungall K., Murphy L., Niblett D., Odell C., RA Mooney R., Mutherford K., Rutter S., Squares R., Squares S., Stevens K., Sharp S., Skelton J., Simmonds M., Squares R., Squares S., Stevens K., Taylor R.G., Tivey A., Walsh S.V., Wazren T., Whitehead S., Rolling R., Woodward J., Volckaert G., Aert R., Robben J., Grymonprez B., Ra Welljens I., Vanstreels E., Rieger M., Schaefer M., Mueller-Auer S., Gabel C., Fuchs M., Fritzc C., Holzer E., Moestl D., Hilbert H., RA Gabel C., Fuchs M., Fritzc C., Holzer E., Moestl D., Hilbert H., RA Gabel C., Fuchs M., Wedler H., Wambutt R., Purnelle B., Goffeau A., Cadieu E., Dreano S., Gloux S., Lenzon A., Thode G., RA Galibartt F., Aves S. J., Xiang Z., Hunt C., Moore K., Hurst S.M., A Galilardin C., Tallada V.A., Garzon A., Thode G., RA Galibart, M., Gaillardin C., Tallada V.A., Garzon A., Thode G., RA Dominguez A., Revuelta J.L., Moreno S., Armstrong J., Forsburg S.L., RA Gariutti L., Lowe T., McCombie W.R., Paulsen I., Potashkin J., Shpakovski G.V., Ussery D., Barrell B.G., Nurse P.; The genome sequence of Schizosaccharomyces pombe.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IF38_SCHPO STANDARD; PRT; 918 AA 014164; 013885; P78791; Q9P6P4; 30-MAY-2000 (Rel. 39, Created) 16-OCT-2001 (Rel. 40, Last sequence update) 28-FEB-2003 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SCHPO
                        This SWISS-PROT entry
                                                                                                                                                                                           DNA Res.
                                                                                                                                                                                                                   cDNAs."
                                                                                                                                                                                                                                MEDLINE=98162722; PubMed=9501991;
Yoshioka S., Kato K., Nakai K., Okayama H.,
"Identification of open reading frames in S
                                                                                                                                                                                                                                                                                                   STRAIN=PR745;
                                                                                                                                                                                                                                                                                                                                                                     Nature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=21848401; PubMed=11859360;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Schizosaccharomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Schizosaccharomyces pombe (Fission yeast).
Eukaryota; Fungi; Ascomycota; Schizosaccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (eIF3 p93).
TIF33 OR SPAC4A8.16C OR SPAC823.01C OR SPAC1E11.01C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28-FEB-2003 (Rel. 41, Last annotation update)
Probable eukaryotic translation initiation factor 3
                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 571-918 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=4896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Schizosaccharomyces.
                                                               SIMILARITY: BELONGS TO
                                                                                                       SUBUNIT: EIF-3 IS SIMILARITY).
                                                                                                                                                 FUNCTION: BINDS TO THE 40S RIBOSOME AND PROMOTES METHIONYL-TRNAI AND MRNA (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104
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                                                                                                                                                                                           4:363-369(1997).
the Swiss Institute
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GEEEEVEEEG-----DESDEEEEEEEEEEEESSSEGLEAEDWAQGVVEASGGFGGYSVQ 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SQOGQLEENNNRFISVDEDSSGNQEEQEEDEE-----
                                                             CONTAINS 1 PCI DOMAIN.
ITY: BELONGS TO THE EIF3S8 FAMILY.
is copyright. It is produced through a c
stitute of Bioinformatics and the EMBL
                                                                                                                               COMPOSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Schizosaccharomycetaceae;
                                                                                                                             ဝှု
                                                                                                                             AT LEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₿
                                                                                                                                                                                                                                   Schizosaccharomyces pombe
                                                                                                                             10
                                                                                                                                                                                                                                                         Nojima H.;
                                                                                                                             DIFFERENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              93 kDa subunit
                                                                                                                                                                     THE BINDING OF
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                                                                                                                             SUBUNITS
                   collaboration
                                                                                                                               (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>د</u>
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outstation

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RC STRAINES288G / AB972;

RX MEDLINE=97313271; PubMed=9169875;

RX Bussey H., Storms R.K., Ahmed A., Albermann K., Allen E., Ansorge W.,

RA Bussey H., Storms R.K., Ahmed A., Barcell B.G., Badcook K., Benes V.,

RA Araujo R., Aparicio A., Barcell B.G., Badcook K., Benes V.,

RA Chung E., Churcher C.M., Coster F., Davis K., Davis R. W.,

RA Dietrich F.S., Delius H., DiPaolo T., Dubois E., Duesterhoeft A.,

RA Dietrich F.S., Delius H., DiPaolo T., Dubois E., Duesterhoeft A.,

RA Dietrich F.S., Delius H., DiPaolo T., Dubois E., Duesterhoeft A.,

RA Dietrich F.S., Delius H., DiPaolo T., Hiller L.,

RA Hall J., Hebling U., Heumann K., Hilbert H., Hiller L.,

RA Hunicke-Smith S., Hyman R., Johnston M., Kalman S., Kleine K.,

RA Komp C., Kurdi O., Lashkari D., Lew H., Lin A., Lin D., Louis E.J.,

RA Komp C., Kurdi O., Lashkari D., Lew H., Wirtipati S., Moestl D.,

RA Mueller-Auer S., Namath A., Nentwich U., Oefner P., Pearson D.,

RA Mueller-Auer S., Namath A., Nentwich U., Scharfe M.,

RA Petel F.X., Pohl T.M., Purnelle D., Schafer M., Scharfe M.,

RA Warestarazu L.A., Ushinsky S., Vierendeels F., Vissers S., Voss H.,

RA Walsh S.V., Wambutt R., Wang Y., Wedler E., Wedler H., Winnett E.,

RA Wallong W.W., Zollner A., Vo D.H., Hani J.,

Ra Warestarazu L.A., Ushinsky S., Vierendeels F., Wedler H., Winnett E.,

RA Warlestarazu L.A., Ushinsky S., Vierendeels F., Wissers S., Voss H.,

Ra Warestarazu L.A., Ushinsky S., Vierendeels F., Wissers S., Voss H.,

Ra Warestarazu L.A., Ushinsky S., Vierendeels F., Wedler H., Winnett E.,

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RA Warestarazu L.A., Ushinsky S., Vierendeels F., Wedler H.
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01-FEB-1995 (Rel. 31, Last sequence up
28-FEB-2003 (Rel. 41, Last annotation
Nuclear polyadenylated RNA-binding pro
NAB3 OR YPL190C.
Saccharows
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P38996;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Saccharomyces cerevisiae (Baker's yeast).
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                                                                                                                                                                                                              PROSITE; PS00030; RRM_RNP_1;
                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; U05314; AAA81910.1; -.

    -!- SUBCELLULAR LOCATION: Nuclear.
    -!- SIMILARITY: Contains 1 RNA recognition motif (RRM) domain.

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Pfam; PF00076; rrm; 1.
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Matches 35
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Viruses; dsDNA viruses, no RNA stage; Herpesviridae;
Gammaherpesvirinae; Rhadinovirus.
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                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                      EMBL; X64346; CAA45696.1; -.
EMBL; M86409; AAA46149.1; -.
EMBL; S76368; AAB21116.1; -.
                                                                                                                                                                                                                                                                        organization between HVS and Epstein-Barr virus.";
Virology 188:296-310(1992).
                                                                                                                                                                                                                                                                                                Nicholas J., Cameron K.R., Coleman H., Newman C., Honess "Analysis of nucleotide sequence of the rightmost 43 kbp herpesvirus saimiri (HVS) L-DNA: general conservation of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=10383;
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                                                                                                                                                                                                                                                                                                                                                                                                        Honess R.W.;
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Newman C., Wittmann S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=92333688; PubMed=1321287;
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                                                    SEQUENCE
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                                                                             protein
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 l Similarity
35; Conserv
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                                                                                                                                                                                                                                                                                                                                                                               structure of the herpesvirus saimiri . 66:5047-5058(1992).
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407 7
                                                                                                                                             email to license@isb-sib.ch).
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(Rel. 25; Last sequence update)
(Rel. 25; Last annotation update)
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POLY-PRO.
  Score 150; DB
Pred. No. 0.01
32; Mismatches
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; CD6D2C7F24A44993 CRC64;
                                                    GLU-RICH (ACIDIC).
FFD399CA82CE136C
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oleman H., Fleckenstein
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Maximum Match 100%
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      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
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1 MNQELLSVGSKRRR
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Match
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Gapop 10.0 , Gapext 0.5
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     144...12.22.33.344
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
     GenCore version 5.1.6 (c) 1993 - 2003 Compugen Ltd.
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 UBFI RAT
ATRA HOUSE
CNG4 BOVIN
CENB HUMAN
PRD2 HUMAN
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PRD2 HUMAN
PRD2 HUMAN
DRS1 YEAST
BA2B HUMAN
TRT DROME
SPT8 YEAST
NKX1 HUMAN
VG48 HSVSA
S521 HUMAN
VG48 HSVSA
WUCL MESAU
UBF2 YEAST
TUFA MOUSE
THYA MOUSE
TYA HUMAN
BBP2 YEAST
                                                                                                                                                                                                                                                                                                                                                                           GARP PLAFF
MAB3 YEAST
IE66 HSVSA
CENB CRIGR
1F38 SCHPO
UBF1 HUMAN
MYT1 HUMAN
YGPO YEAST
SS1 RAT
MP62 LYTP1
UBF1_RAT
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060721 homo sapien
Q01033 herpesvirus
Q96mu7 homo sapien
P08199 mesocricetu
P25980 xenopus lae
Q61687 mus musculu
P36100 saccharomyc
P15771 gallus gall
Q35613 mus musculu
P06454 homo sapien
P36049 saccharomyc
                                                                                                                                                                                                     P25977 rattus norv
P46100 homo sapien
P25976 mus musculu
Q28181 bos taurus
P07199 homo sapien
Q13029 homo sapien
P32892 saccharomyc
Q9uif8 homo sapien
P1931 drosopiila
P27790 mus musculu
P38915 saccharomyc
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O14164 schizosacch
P17480 homo sapien
Q01538 homo sapien
P53115 saccharomyc
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P91753
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Q01042 herpesvirus
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RESULT

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용정	유 성	¥ 8 0	DR PTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	នននននននន	CPRR	R R R R	2200g		RESULT GARP_PI ID GA		
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VDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQESDDFDQSDDSSREDE 136	VVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQNDSQQQQLE    ::: : :    EEEEEEEEEEEEEEEE	18.7%; Score 160.5; DB 1; Length 678; rity 27.3%; Pred. No. 0.0058; nservative 31; Mismatches 34; Indels 15;	AAAA9605.1;  54514.  a; Antigen; Signal.  a; Affigen; Signal.  6 678  6 15	entry is copyright. It is produced through a iss Institute of Bioinformatics and the ENGL conformatics Institute. There are no restrict institutions as long as its content is is statement is not removed. Usage by and fee a license agreement (See http://www.isb-silt to license@isb-sib.ch).	a Plasmodium falciparum gene that encodes a glutein (GARP)."; Parasitol. 31:199-202(1988).	N.A. 48; PubMed=2903445; ahl HD., Crewther P.E., Silva A., Anders R.F.,	ciparum (isolate FC27 / Papua New Guinea). eolata; Apicomplexa; Haemosporida; Plasmodium. 7;	Rel. 13, Created) Rel. 13, Last sequence update) Rel. 38, Last annotation update) -rich protein precursor.	STANDARD; PRT; 678 AA.	ALIGNMENTS	852 1 SRCH_RABIT P16230 712 1 NUCL_RAT 713 1 SG1_RAT 75 1 SG1_RAT 109 1 THYA_BOVIN 239 1 CENB_SHEEP 600 1 ABRA_PLAFG 743 1 ABRA_PLAFG 743 1 ABRA_PLAFC 790 1 YM72_YEAST 639 1 GLCX_SOYBN 358 1 CBF1_KLULA 544 1 NFL_XENLA P35616
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A;Gene: Myt1
A;Map position: 2
C;Keywords: DNA binding; transcription factor; zinc finger
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C; Genetics:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C;Species: Mus musculus (house mouse)
C;Date: 11-Jan-2000 #sequence_revision 11-Jan-2000 #text_change 11-Jan-2000
C;Accession: T42712
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A; Residues: 1-1078 < KIM>
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A;Status: prelimina
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Reference number: Z20766; MUID: 98038874; PMID: 9373037
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Best Local S
Matches 44
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193-268/Domain: HMG box
294-366/Domain: HMG box
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                                            126 D---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 643 AAYKEYISNKRKSMTKLRGPNPKSSRTTLQSKSESEEDDEE----DEDDEDEEEEEDDE
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                                                                                                                                                                                                                29 DEEQMNRVVEEEQQQQLRQQ-----EEEHTARNGEVVGVEPRPGGQNDSQQGQLEENNNR 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MNQELLSVGSKRRRTGGSLRGNPSSSQVDEEQMNRVVEEEQQQ------QLR
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                                                                                                                        FISVDEDSSG--NQEEQEEDEEHAGEQDEEDEEEEE------MDQESDDF 125
RGPELSSPKPEYSVIVEVRSDDDKDEDSRSQKSAVTDESEMYDM 325
                                                                                  EEDEEEEEEGEEGEEEEEEEEEEEEEEEEEEEEEEEEAAPNVIFGEDTSHTSVQKASPEF
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                                                                                                                                                                       DVEEVIEVTSERSQEPCRQSLKDMVSEESSKQKG-VLGHE-----EEGEEEEEDEE
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                                      -----QSDDSSREDEHTHTNSVTNSSSIVDL 152
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Pred. No. 0.023;
5; Mismatches 57
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                                                                                                                                                                                                                                                                                                DB 2; Length 1078;
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RESULT

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ribosomal transcription factor UBF2 - Chinese hamster C;Species: Cricetulus griseus (Chinese hamster) C;Date: 31-Jan-1997 #sequence_revision 31-Jan-1997 #text_change 12-Feb-1999
Search completed:
Job time : 22 secs
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A; Residues: 1-727 < BOL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Title: Cloning and sequencing of the genes encoding the hamster ribosomal transcription A;Reference number: JC5112; MUID:97075939; PMID:8918262 A;Accession: JC5113
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Bolivar,
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                                                                                                                                                                                                                                                                                                                                                                                                                                            Superfamily unassigned HMG box proteins;
;019-184/Domain: HMG box homology <HMG1>
;257-329/Domain: HMG box homology <HMG3>
;445-516/Domain: HMG box homology <HMG5>
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                                                                                       661
                                                                                                                                 103
                                                                                                                                                                           606 AAYKEYISNKRKNMTKLRGPNPKSSRTTLQSKSESEEED-----EEDEDDDEEEEEEDD 660
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                                                                                                                                                                                                                    47 QQEEEHTARN----GEVVGVEPRPGGQNDSQQGQLEENNNRFISVDEDSSGNQEEQEEDE 102
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                                                                                     Goenechea, L.G.; Grenett, H.; Pendon, C.; Valdivia, M.M.
                                                                                                                                                                                                                                                                                                                                                             Conservative
                    December 10,
                                                                                                                                                                                                                                                                                                                                                                             16.9%;
22.5%;
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                    2003, 19:59:50
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hypothetical protein C0335c - malaria parasite (Plasmodium falciparum) C;Species: Plasmodium falciparum C;Species: Plasmodium falciparum C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 09-Jur C;Accession: T18427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Lawson, D.; Bowman, S.; Barrell, E
submitted to the EMBL Data Library,
A;Reference number: Z18935
A;Accession: T18427
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A; Experimental source:
A;Status: preliminary A;Molecule type: DNA A;Residues: 1-1094 <WI
                                               A; Title: A protein )
A; Reference number:
A; Accession: $52076
                                                                                            G;Species: Dictyostelium discoideum
G;Species: Dictyostelium discoideum
G;Date: 16-Feb-1995 #sequence revision 12-May-1995 #text_change 24-Sep-1999
G;Accession: S52076; S49313
R;Wetterauer, B.W.; Hamker, U.; von Haeseler, A.; MacWilliams, H.K.; Simon, M.N.; Veron, Biochim. Biophys. Acta 1265, 97-101, 1995
                                                                                                                                                                protein kinase
C;Species: Dict
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A; Residues: 1-3724 < LAW >
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                                             Accession: S52076
                                                                              Title: A protein kinase
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 ¡Molecule type: DNA
;Residues: 1-1094 <WE2>
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                                                                  S52076;
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24.0%;
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                                                                                  from Dictyostelium
                                                                rom Dictyostelium discoideum with MUID:95161460; PMID:7857991
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Pred. No. 0.01
36; Mismatches
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RESULT 13 S09318

transcription factor UBF,

nucleolar -

C;Species: Homo sapiens (man)
C;Date: 30-Jun-1992 #sequence\_revision 30-Jun-1992
C;Accession: S09318
R;Jantzen, H.M.; Admon, A.; Bell, S.P.; Tjian, R.

#text\_change 24-Sep-1999

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A;Introns:
C;Superfami
C;Keywords:
F;20-281/Do
F;28-36/Reg
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C;Date: 22-Nov-1993 #sequence
C;Accession: S18193
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                                                                                                                                                                                                                                                                                                                                                                              A;Status: preliminary
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;Superfamily: u
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                                                        AAYKEYISNKRKSMTKLRGPNPKSSRTTLQSKSESEEDDEE---
                                                                                   QQEEEHTARNGEVV----GVEPRPGGQNDSQQGQLEENNNRFISVDEDSSGNQEEQEEDE 102
                                                                                                                LKERMVEIGSRWQRI---
                                                                                                                                           MNQELLSVGSKRRTGGSLRGNPSSSQVDEEQMNRVVEEEQQQ----
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unassigned
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23.2%;
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Pred. No. 0.022
35; Mismatches
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Pred. No. 0.03;
5; Mismatches
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                                                                                                   C;Species: saimiriine herpesvirus 1
A;Note: host Saimiri sciureus (common squirrel monkey)
C;Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #te
C;Accession: G36813; S20244
                                                                                                                                                                                                                         A;Title: Primary structure of the herpesvirus saimiri genome. A;Reference number: A37309; MUID:92333688; PMID:1321287 A;Reference number: A37309; MUID:92333688; PMID:1321287 A;Contents: annotation; possible protein-coding frames A;Note: neither amino acid nor nucleotide sequence is given
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R/Albrecht, v.
submitted to the EMBL Data Library, January 1992
submitted to the EMBL Data Library, January 1992
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A;Residues: 1-340,'I',342-802 <SUG>
A;Cross-references: GB:D37935; NID:g1235749; PID:g1235750
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                                                                                                                                                                                                                                                                                                                            A;Cross-references: GB:X64346; NID:g60320; PIDN:CAA45696.1; PID:g60394
R;Albrecht, J.C.; Nicholas, J.; Biller, D.; Cameron, K.R.; Biesinger,
J. Virol. 66, 5047-5058, 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Map position:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: EMBL:273546; NID:g1370396; PID:g1370397; GSPDB:GN00016; MIPS:YPI A;Experimental source: strain S288C (AB972) R;Sugimoto, K.; Matsumoto, K.; Kornberg, R.D.; Reed, S.I.; Wittenberg, C. Mol. Gen. Genet. 248, 712-718, 1995 R.J.; Reed, S.I.; Wittenberg, C. Mol. Gen. Genet. 248, 712-718, 1995 R.J.; Reed, S.I.; Wittenberg, C. Mol. Gen. Genet. 248, 712-718, 1995 R.J.; Recentles to the dominant Gl cyclin mutant CLN3-2: identification A;Reference number. Goll22, MUID:96069710; PMID:7476874
                                               A; Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Reference number: A36806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     immediate-early protein - saimiriine herpesvirus 1 (strain 11)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: DNA
A; Residues: 1-802 < RIE>
                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Gene: SGD:NAB3; NAB3; HMD1; MIPS:YPL190c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Accession: S65209
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                                                                         Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                        Residues: 1-407 <ALB>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      331-396/Domain: ribonucleoprotein repeat homology <RRM1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Superfamily: yeast NAB3 protein; ribonucleoprotein repeat Keywords: nucleus; RNA binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Status: nucleic acid sequence not shown
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  coss-references:
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                       1-407 <NIC>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LSVDSNSNE - - NELMNNSSADDGIEFDAPEEEREAEREEENEEOHELEDVNDEEEEDKEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LSVGSKRRTGGSLRGNPSS-----SQVDEEQMNRVVEEEQQQQQL-----RQQEEE 51
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                                                      DNA
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GB:S76368; NID:g243351; PIDN:AAB21116.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17.7%; Score 152.5; DB 28.8%; Pred. No. 0.011;
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PID:g243353
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C;Accession: T38786; T38056
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T38786
                              A;Cross-references: EMBL:Z98762; PIDN:CAB11485.1; GSPDB:GN00066; SPDB:SPAC4A8.16c
A;Accession: T38056
                                                                                                                      R;Skelton, J; Churcher, C.M.; Barrell, B.G
submitted to the EMBL Data Library, August
A;Reference number: Z21751
A;Accession: T38786
                                                                 A; Molecule type: DNA
A; Residues: 280-918 < SKE>
                                                                                                     A; Status: preliminary
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C;Keywords: DNA binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;Bejarano, L.A.; Valdivia, M.M.
Biochim. Biophys. Acta 1307, 21-25, 1996
A;Title: Molecular cloning of an intronless gene for the hamster
A;Reference number: S70358; MUID:96254058; PMID:8652663
A;Accession: S70358
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S70358
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C;Superfamily: herpesvirus immediate-early protein C;Keywords: early protein
             A;Status: preliminary; translated
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A;Molecule type: DNA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Genetics
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                                                                                                                                                                                                                                                                                                                                                                                                                                                      72 SQQGQLEENNNRFISVDEDSSGNQEEQEEDEE-----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
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                                                                                                                                                                                                                                                                                                                                               EEAQCPTLHFLEGGEDSDSDSDEEEEDEEEDEEDDDDDDDD
                                                                                                                                                                                                                                                                                                                                                                                                                    GEEEEVEEEG-----DESDEEEEEEEEEEEEESSSEGLEAEDWAQGVVEASGGFGGYSVQ 499
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                                                                                                                                                                                                                                                                                                                                                                                -----HAGEQDEEDEEEEEMDQESDDFDQSDDSSRED 135
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DNA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 149.5; DB Pred. No. 0.013;
               from GB/EMBL/DDBJ
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Pred. No. 0.008;
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09-May-1997
                                                                                                                                                                           B.G.; Rajandream,
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                                                                                                                                                                                                             #text_change 15-Sep-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #text_change 05-Nov-1999
                                                                                                                                                                                                                                                    (Schizosaccharomyces pombe)
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                                                                                                                                                                             M.A.; Wood, V.
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A; Status, Procession A, Wolecule type: DNA
A; Residues: 1-636 <SCH>
A; Residues: 1-636 <SCH>
A; Cross-references: EMBL: AL391572; GSPDB: GN00116; NCSP: B23I11.50
A; Cross-references: BAC clone B23II1; strain OR74A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Accession: T51893
R;Schulte, U.; Aign, V.; Hoheisel, J.; Brandt, P.; Fartmann, R;Schulte, U.; Aign, V.; Hoheisel, J.; Brandt, P.; Fartmann, R;Schulted to the Protein Sequence Database, August 2000
                                                                    EMBO J. 7, 1129-1137, 1988
A;Title: The 11-1 gene of Plasmodium falciparum codes f.
A;Reference number: S00485; MUID:88296416; PMID:2841111
                                                                                                                                                                                 gene 11-1 protein precursor - malaria parasite (Plasmodium falciparum) (fra C;Species: Plasmodium falciparum C;Date: 07-Jun-1990 #sequence_revision 07-Jun-1990 #text_change 09-Jun-2000
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A;Accession: T51893
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                                                                                                                               R, Scherf, A.; Hilbich, C.;
EMBO J. 7, 1129-1137, 1988
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N;Alternate names: protein B23I11.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Introns: 24/1; 59/2
                                                                  A; Accession: S00485
;Molecule type: DNA
;Residues: 1-1315;1316-1485;1486-1657;1658-1729;1730-1948
;Cross-references: EMBL:X07453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Species: Neurospora crassa;Date: 20-Oct-2000 #sequence_revision;Accession: T51893
                                                                                                                                                                     Accession: S00485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Map position:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            35;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRPGGQNDSQQGQLEENNNRFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQESD 123
                                                                                                                                                                                                                                                                                                                                                                                                                                     RPGGQNDSQQGQ--LEENNNRFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BESEERBEEEEEE
                                                                                                                                                                                                                                                                                                                              DD-ESGDDDEKNDVNAELRKI 308
                                                                                                                                                                                                                                                                                                                                                              DDFDQSDDSSREDEHTHTNSV
                                                                                                                                                                                                                                                                                                                                                                                                         MEAEETEDDEGEDDEEELDGALLSGSDDEEGDSEEDDEDDEEGSGDEDEDEDEDEDEDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LAVRIKKRPTAADFM---SGSEDDEE---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LSVGSKRRTGGSLRGNPSSSQVDEEQMNRVVEEEQQQQLRQQEE-EHTARNGEVVGVEP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GB:AE005172; NID:g9558597; PIDN:AAF88160.1; GSPDB:GN00141
                                                                                                                                                 C.; Sieg,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19.2%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              136
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Pred. No. 0.0013;
30; Mismatches 58;
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Pred. No. 0.00067;
30; Mismatches 50
                                                                                                                                                                                                                                                                                                                                                                  143
                                                                                                                                                     Mattei,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20-Oct-2000 #text_change 20-Oct-2000
                                                                                                                                                     D.; Mercereau-Puijalon, O.; Mueller-Hill,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EEDDEEDLEEDEEDEEDSEEGEQNGLFD
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                                                                                                              fast evolving repeats
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NAB3 protein - yeast (Saccharomyces cerevisiae)
N;Alternate names: probable RNA/ssDNA-binding protein
C;Species: Saccharomyces cerevisiae
C;Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #te
C;Accession: S48529; S65209; S60122
R;Wilson, S.M.; Oberdorf, A.M.; Datar, K.V.; Swedlow,

revision 10-Sep-1999 #text\_change 19-Apr-2002

J.R.; Paddy,

M.R.; Swanson,

from

Sacc

protein HMD1; protein P1945; protein

S48529

ი .

R/WILEOH, S.P., CHARACTERIZATION of Nuclear Polyadenylated RNA-Binding Proteins

A; Accession: S48529 A; Reference number: S48529

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A; Introns: 25/3
C; Superfamily: h
C; Keywords: tand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C;Keywords: tandem repeat
F;1-71/Domain: signal sequence #status predicted
F;72-1948/Product: gene 11-1 protein (fragments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A54514
                                                                                                                                                                                                                                                                                                                                                                                                                                                     glutamic acid-rich protein precursor - malaria parasite (Plasmodium N; Alternate \ names: \ GARP
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C;Date: 15-Oct-1994 #sequence_revision
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                                                                                                                                                                                                                                                        A; Cross-references: GB:J03998; NID:g160298; PIDN:AAA29605.1; PID:g160299
                                                                                                                                                                                                                                                                         A;Residues:
                                                                                                                                                                                                                                                                                          A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                       A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                       A; Reference number: A54514;
                                                                                                                                                                                       ;Superfamily: histone H1;Keywords: tandem repeat
                                                                                                                                                                                                                                                                                                                                       Title: Structure of a Plasmodium falciparum gene that encodes a glutamic acid-rich; Reference number: A54514; MUID:89040048; PMID:2903445
                                                                                                                                                                                                                                                                                                                                                                       ;Triglia, T.; Stahl, H.
ol. Biochem. Parasitol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;Comment:
                                                                                                                                                                                                                                                                                                                                                                                                   Accession: A54514
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Best Local
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This protein is
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37; Conserv
                                                                                                                              30;
                                                                                                                                                                                                                                                                       1-678 <TRI>
                            VDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQESDDFDQSDDSSREDE 136
                                                               QEDEEEVEEDEEEEEEEEEEEEE--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REDE 136
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --LEENNNRFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEEMDQ--ESDDFDQSDDSS 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEE--NKGIDENTDINENVEENEYVDKNTEGDKDGVEDKGGGENEGGDGHGSAGDSAGGD
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                                                                                             QVDEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQNDSQQGQLEENNNRFIS
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                                                                                                                                                                                                                                                                                                                                                                                      Stahl, H.D.; Crewther, P.E.; Silva,
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                                                                                                                              Conservative
                                                                                                                                            18.7%;
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29.8%;
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; Pred. No. 0.0071;
28; Mismatches 41
                                                                                                                              31;
                                                                                                                                            Score 160.5;
Pred. No. 0.
                                                                                                                                Mismatches
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                                                                                                                                Gaps
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Result
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
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re greater than or equal to the score of the result being printed,
is derived by analysis of the total score distribution.
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## ALIGNMENTS

B86336
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Mar-2001 #sequence\_revision 02-Mar-2001 #text\_change 31-Dec-2001
C;Accession: E8636
R;Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso, Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K.;
Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K.;
angen, N.F.; Hughes, B.; Huizar, L.
Nature 408, 816-820, 2000
A;Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, C.;
C.A.; Li, J.H.; Lin, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Marziali,
Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.
A;Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallon, I.
A;Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis.
A;Reference number: A86141; MUID:21016719; PMID:11130712
A;Residues: 1-409 <STO> hypothetical protein 48 - ateli C;Species: ateline herpesvirus A;Variety: strain 73 C:Date: 21-Jan-2000 #sequence\_r C;Accession: T42963 A;Status: preliminary; translated from GB/EMBL/DDBJ A;Molecule type: DNA A;Residues: 1-792 <ALB> C;Accession: T42963
R;Albrecht, J.C.; Fleckenstein, B. submitted to the EMBL Data Library, A;Description: Primary structure of A;Reference number: Z22274
A;Accession: T42963 δ 밁 S A; Experimental source: strain Best Cross-references: EMBL:AF083424; PIDN:AAC95573.1 ;Date: 21-Jan-2000 #sequence\_revision 21-Jan-2000 #text\_change 21-Jan-2000 Query Match госат 20 RGNPSSSQVDEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQNDSQQGQLEE h 20.3%; Score 174.5; DB; Similarity 31.6%; Pred. No. 0.00042 Conservative ateline herpesvirus 3 (strain 73) virus 3 28; Mismatches August 1998 the herpesvirus ateles genome DB 2; 47; Length Indels <u>ن</u> Gaps 574 521 79

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AC AAY5850
AC AAY586
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                                                                                                                                                      from human herpes virus type 8 (HHV8, a gammaharpestirus). HHV8 plays an C important role in the pathogenesis of AIDS-related Kaposi's sarcoma. The invention relates to a novel method of detecting the presence of human therpesvirus 8 in a biological sample using peptides representative of C dominant antigenic regions of HHV8. The method comprises contacting one or more isolated, immunogenic HHV8 peptides with an antibody-containing biological sample, and detecting the formation of a complex between the peptide and the antibody. The presence of a peptide-antibody complex c indicates the presence of human herpesvirus 8. The detection of HHV8 indicates the presence of human herpesvirus 8. The detection of HHV8 c inflection can be used to disgnose AIDS-associated Kaposi's sarcoma. The c immunisation of a human against HHV8 infection, thereby reducing HHV8 crelated disease. The detection assays are highly specific, sensitive and accurate. Early detection and treatment of Kaposi's sarcoma could diminish the severity of symptoms related to AIDS and the sensitive techniques could reduce arribacies characterisations of skin disorders.
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previous assays for HHV8 antibodies such as immunofluorescence assays, immunoblots and enzyme immunosassays lack the sensitivity and accuracy needed for reliable diagnosis of Kaposi's sarcoma. Further advantages of the assays are that reproducible results are obtained and the method is suitable for rapid throughput and screening of samples economically
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequences AAY58480-Y58532 represent immunogenic polypeptides derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 2; Page 59-62; 68pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New methods and compositions for the detection of human herpesvirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2000-097142/08
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                                        reproducible results are obtained and the method
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                                                                                                                                            19.0%; buc. 29.1%; Pred. No. ...
                                                                                                                                                                    Score 163.5; DB Z1;
Pred. No. 7.6e-06;
Pred. No. 7.6e-35;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-MAR-2003
17-DEC-1996
                                                                                                                                                                                                                                                                                                                                                                                         proteins. The receptor proteins were used to design polypeptides, pref. based on the transmembrane domains, for use in G-protein coupled receptor ligand binding assays. The polypeptide fragments retain biological activity such as binding a GPR ligand or modulating GPR ligand binding to a GPR (see AAW02747-W02299 for examples of polypeptide fragments). The polypeptide fragments can be used in compositions for treating subjects suffering from a pathology related to a GPR abnormality e.g. a psychotic disorder such as schizophrenia.

(Updated on 25-WAR-2003 to correct PF field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         proteins AAW02657-W02720 represent a range of G-protein coupled receptor (GPR) protein selected from cAMP, adenosine, muscarinic acetylcholine, adrenergic, thrombin, endothelin, bombesin, endocrine, rhodopsin, opsin, odorant, cytomegaloviral and other GPR proteins. The peptides AAW03578-W03651 represent the N-terminal fragments of the above
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human thyrotropin GPR N-terminal sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09-SEP-1993;
10-SEP-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-APR-1996
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Murphy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Fig 8B(2); 184pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (UYNY ) UNIV NEW YORK STATE
                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dopamine receptor peptide - useful as antipsychotic agent, e.g. treating schizophrenia
                                                                                         133
                                                                                                                                 77
                                                                                                                                                                  73
                                                                                                                                                                                                         17
                                                                                                                                                                                                                                          13
                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                      RRTGGSLRGNPSSSQVDEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQNDS
                                                                                                                                                                QQGQLEENNNRFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQESDDFDQSDDSS 132
                                                                                                                               REDE 136
                                                                                                                                                                                                                                                                                                                                                          412 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (updated)
(first entry)
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92US-0943236.
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                                                                                                                                                                                                                                                                                                   19.1%;
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                                                                                                                                                                                                                                                                                 Score 164; DB 17;
Pred. No. 2.1e-06;
0; Mismatches 60
                                                                                                                                                                                                                                                                                       60;
                                                                                                                                                                                                                                                                                                                      Length 412;
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AAY96255 LD AAY XX

AAY96255

standard; Protein; 1162 AA

Sequence

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The present sequence is the Kaposi's sarcoma-associated herpesvirus, CC (KSHV) latency-associated nuclear antigen (LANA). KSHV is also known CC as Human Herpes Virus 8 (HHV8) and belongs to the rhadino virus, or CC gamma-2 herpes virus class. The LANA protein is necessary for the CC gamma-2 herpes virus class. The LANA protein is necessary for the CC rhadino virus infection is implicated in a variety of diseases e.g. CC rhadino virus firstion Lymphoma (HEL) and multicentric CC (KAposi's Sarcoma (KS), Primary Effusion Lymphoma (HEL) and multicentric CC (Castleman's disease. In addition, KS is a common malignancy in HIV CC castleman's disease. In addition, KS is a common malignancy in HIV CC genes expressed from the latent viral DNA is LANA associates with CC genes expressed from the latent viral DNA is LANA. LANA associates with CC (RVCAE), thereby providing a tethering function: the KSHV DNA episome is "tied" to the host chromosomes. This allows the viral DNA to persist in CC "tied" to the host chromosomes. This allows the viral DNA to persist in CC molecules that inhibit LANA interaction with RVCAE, thereby interfering with the latency cycle of this virus. Potential antiviral treatments for the above mentioned diseases may therefore be based on LANA deregulation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kaposi's sarcoma-associated herpesvirus; KSHV; rhadino virus; latency-associated nuclear antigen; LANA; gamma-2 herpes virus; Human herpes virus 8; HHV8; rhadino virus cis-acting element; RVCAE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kaposi's sarcoma-associated herpesvirus LANA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kaposi's
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kaposi's sarcoma; primary effusion lymphoma; PEL;
human immunodeficiency virus; HIV; multicentric Castleman's disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Region
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21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200029626-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (KIEF/) KIEFF E D.
(BALL/) BALLESTAS M E.
(KAYE/) KAYE K M.
                                                                                                                                                                                                                                                                                                                                Disclosure; Fig 7; 70pp; English
                                                                                                                                                                                                                                                                                                                                                                            Treating or preventing a disease associated with rhodino virus infection in a mammal which includes Kaposi's Sarcoma and Primary
                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2000-387829/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kieff ED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sarcoma-associated herpesvirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ballestas
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99US-0298568.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "nuclear localisation signal,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note= "nuclear localisation signal,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note= "Gln, Glu,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note=
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Gln, Glu, Pro-rich region"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kaye KM
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CC Note: The sequence data for this patent did not appear in the printed CC aft from wino intr/nub/mublished not sequences format directly from WIPO CC aft from wino intr/nub/mublished not sequences.
                                                                                                                                                                                                            Query Match
Best Local S
Matches 34
                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                       specification, at ftp.wino in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2001-639362/73.
N-PSDB; AAS75457.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-MAR-2000; 2000US-0540217.
23-AUG-2000; 2000US-0649167.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; chromosome mapping; gene mapping; gene therapy; forensic; food supplement; medical imaging; diagnostic; genetic disorder.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200175067-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel human diagnostic protein #11261.
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                                                                                                                                                                                                                                                                                                                  ftp.wipo.int/pub/published_pct_sequences.
156
                                                                    96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20; SEQ ID No 41629; 103pp; English
                                                                                                 70 NDSQQGQLEENNNRFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQESDDFDQSD 129
                                                                                                                                                                       10 SKRRRTGGSLRGNPSSSQVDEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQ
                                                                                                                                                                                                            34;
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                               DSSREDEHTHT 140
                                                                SLRRR----RKEEGEEEEEEEEEEEEEEEEEEEEEEEE
                                                                                                                                                                                                                                                                                    167 AA;
                                                                                                                                                                                                              Conservative
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                                                                                                                                                                                                                             19.2%;
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                                                                                                                                                                                                            32;
                                                                                                                                                                                                            Score 165.5; DB 2
Pred. No. 5.3e-07;
2; Mismatches 44
                                                                                                                                                                                                                                            DB 22;
                                                                                                                                                                                                            44;
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                                                                                                                                                                                                                                            Length 167;
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RESULT 12
AAW03627
ID AAW03
AC GPR)
CC AACTON
CC AACTON
CC AAW03
CC ACTON
CC AAW03
CC AAW03
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Best Local S
Matches 31
                                                                                                                                                                                                                                                                                                                                                                                                                                          adrenergic, thrombin, endothelin, bombesin, endotrine, rhodopsin, opsin, odorant, cytomegaloviral and other GPR proteins. The peptides AAW03578-W03651 represent the N-terminal fragments of the above proteins. The receptor proteins were used to design polypeptides, pref. based on the transmembrane domains, for use in G-protein coupled receptor ligand binding assays. The polypeptide fragments retain biological activity such as binding a GPR ilgand or modulating GPR ligand binding a GPR (see AAW02747-W0299) for examples of polypeptide fragments). The polypeptide fragments can be used in compositions for treating subjects suffering from a pathology related to a GPR abnormality e.g. a psychotic disorder such as schizophrenia.
                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     G-protein coupled receptor; ligand binding assay; transmembrane domai schizophrenia; dopamine; cAMP; adenosine; thrombin; adrenergic; opsin muscarinic acetylcholine; endothelin; bombesin; endocrine; rhodopsin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Proteins AAW02657-W02720 represent a range of G-protein coupled receptor (GPR) proteins selected from CAMP, adenosine, muscarinic acetylcholine,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Fig 8B(2); 184pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New dopamine receptor peptide - useful as antipsychotic agent, for treating schizophrenia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1996-208785/21.
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10-SEP-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          09-SEP-1993;
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17-DEC-1996
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                                                                                                                                                                                               29
                                                                                                                                                                                                                                                                                            Similarity
                                                 EDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQESDDFDQSDDSSREDEHTHTNSVTNS 146
                                                                                                                          DEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQNDSQQGQLEENNNRFISVD
360
                                                                                                                                                                                                                                                           Conservative
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92US-0943236
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                                                                                                                                                                                                                                                    19.2%; Score 165; DB 17;
26.3%; Pred. No. 1.4e-06;
tive 33; Mismatches 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
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RESULT 13
AAW03626
ID AAW03

AAW03626 standard; peptide; 412 AA

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RESULT 10
ABP56380
ID ABP56
XX
AC ABP56
XX
DT 11-MA
CX
DT Polya
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                                                                                                                                                                                                                                                                                                                                                                                                                                                      CC product formed by ligating together oligonucleotides that encode glutamate/aspartate residues, expressing EV in a host cell, and considered by some product (P) of EV, where (P) is PP and at least CC (1) a recombinant fusion protein (I) comprising a polyanionic polypeptide at either one end or at both ends of it; (2) a cC (2) and another polypeptide at either one end or at both ends of it; (3) a cC (2) a cC (3) a vector (III) comprising a polyanionic polymer and CC polyanionic polymer (II) or one consists a cassette which CC (4) a nucleotide sequence encoding a polyanionic polymer and CC polyaspartic acid; (3) a vector (III) comprising a cassette which CC (4) polyaspartic acid or polyaspartic acid; (4) production of (I); (5) a cell (CIV) comprising (III) or a vector that comprises a nucleotide sequence that encodes a polyanionic polymer that is larger than 10 kDa; and (6) a recombinantly-produced polyanionic polymer (I) that is of any molecular CC (I) is useful for treating a disease or ailment in an individual by CC administering (I) to the individual. (1) is also useful for delivering an effective amount of a pharmaceutically active agent, a therapeutic CC testing or research purposes. ABZ22013 to ABZ22131 and ABP56374 to
                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Producing monodispersed preparation of polyanionic polymer for therapy, by expressing vector comprising ligation product of oligonucleotides encoding glutamate/aspartate residues in host cell and isolating the
                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention describes a method (M) for producing a monodispersed preparation of a polyanionic polymer (PP) larger than 10 kD. (M) involves inserting into an expression vector (EV) a ligation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example 6; Page 41; 74pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  product
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                                         11-MAR-2003
                                                                          ABP56380;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (LEUN/) LEUNG D
                                                                                                        ABP56380 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                          ABP56400 represent
                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                           64
                                                                                                                                                                                                                          83
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                                                                                                                                                                                                                                                                                                                         31;
                                                                                                                                                                                                                                                                                                                                            Similarity
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                                                                                                                                                                                           RFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQESDDFDQSDDSSREDE 136
                                                                                                                                                                                                                                                                                          PSSSQVDEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQNDSQQGQLEENNN
                                                                                                                                                                                                                                                           187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bergman PA,
                                                                                                                                                                                                                                                                                                                             Conservative
                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                            sequences used in the exemplification of
                                                                                                           Peptide; 198
                                                                                                                                                                                                                                                                                                                                           19.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lofquist A,
                                                                                                                                                                                                                                                                                                                           31;
                                                                                                                                                                                                                                                                                                                                           Score 167; DB 24;
Pred. No. 4.5e-07;
                                                                                                           8
                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pietz GE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tompkins CK;
                                                                                                                                                                                                                                                                                                                                                        Length 187;
                                                                                                                                                                                                                                                                                                                             Indels
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                                                                                                                                                                                           117
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                                                                                                                                                                                                                                                                                                                             Gaps
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Polyanionic fusion protein product #1

ABG11270 ID ABG1 XX

ABG11270 standard; Protein; 167

RESULT 11

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                                                                                                                                                                                                                                 CC glutamate/aspartate residues, expressing EV in a host cell, and code (CC isolating the protein product (P) of EV, where (P) is PP and at least (CC 80% of PP is approximately of the same molecular weight. Also described: (CC (1) a recombinant fusion protein (I) comprising a polyanionic polyapetide at either one end or at both ends of i; (2) a polyanionic polymer (II) conjugate comprising a polyanionic polymer and CC polyanionic polyantic polymer and CC polyapartic acid; (3) a vector (III) comprising a cassette which CC comprises a nucleotide sequence encoding a polyanionic polymer and CC polyaspartic acid or polyaspartic acid; (4) production of (I); (5) a cell (CC polyaspartising (III) or a vector that comprises a nucleotide sequence that is larger than 10 kD, and is conjugated to another protein. (CC (I) is useful for treating a disease or aliment in an individual by CC administering (II) to the individual. (I) is also useful for delivering an effective amount of a pharmaceutically active agent, a therapeutic conjugation or drang to a patient in need of it, or for dispossic and CC invention.
                                                                                                                              Matches
                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Producing monodispersed preparation of polyanionic polymer for therapy, by expressing vector comprising ligation product of oligonucleotides encoding glutamate/aspartate residues in host cell and isolating the product -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  monodispersed preparation of a polyanionic polymer (PP) larger than 10 kD. (M) involves inserting into an expression vector (EV) a ligation product formed by ligating together oligonuclectides that encode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200277036-A2
                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2003-058367/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-MAR-2001; 2001US-277705P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21-MAR-2002; 2002WO-US08614.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present invention describes a method (M) for producing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Leung DW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (LEUN/) LEUNG D W.
                                                              11
71
                                83
                                                                                              23
                                                                                                                              31;
                                                                                                                                               Similarity
                            RFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQESDDFDQSDDSSREDE 136
                                                              PSSSQVDEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQNDSQQGQLEENNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bergman PA,
                                                                                                                                                                                            198 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              polymer; bioactivity; water solubility
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Page 28;
                                                                                                                              Conservative
                                                                                                                                             19.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   74pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lofquist A,
                                                                                                                            31;
                                                                                                                            Score 167; DB 24;
Pred. No. 4.8e-07;
1; Mismatches 52
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                                                                                                                                52;
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                                                                                                                                                            Length 198;
                                                                                                                                Indels
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RESULT 8
ARB5631
ID ARB5
XX ARB5
XX ARB5
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XX WO20
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GC glutamate/aspartate residues, expressing EVV in a host cell, and CC isolating the protein product (P) of EV, where (P) is PP and at least CC 80% of PP is approximately of the same molecular weight. Also described: CC (1) a recombinant fusion protein (I) comprising a polyanionic polypeptide at either one end or at both ends of it; (2) a cc polyanionic polymer (II) conjugate comprising a polyanionic polymer and CC Leukine, where the polyanionic polymer is polyglutamic acid or CC polyaspartic acid; (3) a vector (III) comprising a cassette which CC comprises a nucleotide sequence encoding a polyanionic polymer and at CC least one other nucleotide sequence, where the polyanionic polymer is colyglutamic acid or polyaspartic acid; (4) production of (I); (5) a cell CC (IV) comprising (III) or a vector that comprises a nucleotide sequence that comprises a nucleotide sequence of that encodes a polyanionic polymer that is larger than 10 kD, and (6) a recombinantly-produced polyanionic polymer (V) that is of any molecular CC weight or is larger than 10 kD, and is conjugated to another protein. CC (I) is useful for treating a disease or ailment in an individual by CC administering (I) to the individual. (I) is also useful for delivering an CC effective amount of a pharmaceutically active agent, a therapeutic protein or a drug to a patient in need of it, or for diagnostic and CC testing or research purposes. ABZ22045 to ABZ22131 and ABP56374 to (invention)
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Best Local S
Matches 31
21-MAR-2002; 2002WO-US08614
                                         03-OCT-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
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                                                                               WO200277036-A2
                                                                                                                                                            Polyanionic polymer; bioactivity; water solubility
                                                                                                                                                                                                   Polyanionic fusion protein product #2
                                                                                                                                                                                                                                             11-MAR-2003
                                                                                                                                                                                                                                                                                     ABP56381;
                                                                                                                                                                                                                                                                                                                          ABP56381 standard; Peptide; 186 AA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2003-058367/05
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                                                                                                                                                                                                                                                                                                                                                                                                                              136
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                           (first entry
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19.5%; Score 168; DB 24; 28.7%; Pred. No. 3.9e-07;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30; Mismatches
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ABP56384
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cc monodispersed preparation of a polyanionic polymer (PP) larger than CC 10 kD. (M) involves inserting into an expression vector (EV) a ligation CC product formed by ligating together oligonucleotides that encode CC glutamate/aspartate residues, expressing EV in a host cell, and CC isolating the protein product (P) of EV, where (P) is PP and at least CC (1) a recombinant fusion protein (I) comprising a polyanionic polypeptide at either one end or at both ends of it; (2) a CC polyanionic polymer (II) conjugate comprising a polyanionic polymer and CC Leukine, where the polyanionic polymer is polyanionic polymer and CC comprises a nucleotide sequence encoding a polyanionic polymer and CC comprises a nucleotide sequence, where the polyanionic polymer is polyglutamic acid or polyaspartic acid, (3) a vector (III) comprises a nucleotide sequence (C (IV) comprising (III) or a vector that comprises a nucleotide sequence that comprises a nucleotide sequence where the polyanionic polymer is C (IV) comprising (III) or a vector that comprises a nucleotide sequence c (IV) comprises a polyanionic polymer that is larger than 10 kD, and (6) a recombinantly-produced polyanionic polymer (V) that is of any molecular CC weight or is larger than 10 kD, and is conjugated to another protein. CC (I) is useful for treating a disease or ailment in an individual by confict of a patient of a patient in need of it, or for diagnostic and CC ABPS5400 represent sequences used in the exemplification of the present CC invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                             Polyanionic
                                                                                                                                    11-MAR-2003
                                                                                                                                                                          ABP56384;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                       Polyanionic
                                                                                                                                                                                                              ABP56384 standard; Peptide; 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Producing monodispersed preparation of polyanionic polymer for therapy, by expressing vector comprising ligation product of oligonucleotides encoding glutamate/aspartate residues in host cell and isolating the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present invention describes a method (M) for producing a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example 4; Page 35; 74pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         encoding glutamate/aspartate
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
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                                                                                                                                                                                                                                                                                                                                                RFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQESDDFDQSDDSSREDE 136
                                                                                                                                                                                                                                                                                                                                                                                                                        PSSSQVDEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGGQNDSQQGQLEENNN
                                                                                                                                                                                                                                                                                                             Bergman PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186 AA;
                                                       polymer; bioactivity; water solubility.
                                                                                             fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                  (first
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                                                                                             protein product
                                                                                                                                  entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                             19.4%; Score 167; DB 24; 27.2%; Pred. No. 4.4e-07; tive 31; Mismatches 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lofquist A,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 186;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for identifying expressed genes. (I) is useful in gene therapy techniques to restore normal activity of (II) or to treat disease states involving (II). (II) is useful for generating annibodies against it, detecting or quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical imaging of sites expressing (II). (I) and (II) are useful in reating disorders involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in diagnostics, forensics, gene mapping, identification of mutations or esponsible for genetic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and amino acid sequences. ABG00010-ABG30377 represent novel human of diagnostic amino acid sequences of the invention.

Note: The sequence data for this patent did not appear in the printed specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABG11263 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                polynucleotides are also used in diagnostics as expressed sequence tags
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          polypeptide (II)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human; chromosome mapping; gene mapping; gene therapy; forension food supplement; medical imaging; diagnostic; genetic disorder
WPI; 2001-639362/73.
N-PSDB; AAS75450.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
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                                                                                                                                                                                                                   31-MAR-2000; 2000US-0540217.
23-AUG-2000; 2000US-0649167.
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                                                                                            Liu C,
                                                                                                                                                            INC.
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Pred. No. 1.5e-07
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RESULT 7
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                                                                                                                                                                                                                                                                                                                                                                                                   Polyanionic polymer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Polyanionic fusion protein product #5
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                                                              21-MAR-2001; 2001US-277705P
                                                                                                                                                                                                      03-OCT-2002
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(LEUN/) LEUNG D W
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  172 AA;
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RESULT 4
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CC Note: The sequence data for this patent did not appear in the printed consection, but was obtained in electronic format directly from WIPO CC at ftp.wipo.int/pub/published_pct_sequences.
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Best Local (
 04-APR-1995
                                       JP07089995-A
                                                                                                               leucocytozoan protozoa; structural protein; epitope; vaccine; fowl;
leucocytozoanosis; treatment.
                                                                                                                                                                                                              19-DEC-1995
                                                                                                                                                                                                                                                 AAR70491;
                                                                                                                                                                                                                                                                                   AAR70491 standard; Protein; 562 AA
                                                                       Leucocytozoan protozoa sp
                                                                                                                                                                      Leucocytozoan protozoa structural protein epitope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                      DDSSREDEHTHTNSVTNSSSIVD-----LPVHQL 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                              --EEEEEEEEEE 146
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              254 AA;
                                                                                                                                                                                                          (first entry)
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RESULT 5
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                                                   WPI; 2001-639362/73.
N-PSDB; AAS69541.
                                                                                                                                                                                                                                                  31-MAR-2000; 2000US-0540217.
23-AUG-2000; 2000US-0649167.
                                                                                                                                                                                                                                                                                                                                   30-MAR-2001; 2001WO-US08631
                                                                                                                                                                                                                                                                                                                                                                                          11-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200175067-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human; chromosome mapping; gene mapping; gene therapy; forension supplement; medical imaging; diagnostic; genetic disorder
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Novel human diagnostic protein #5345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABG05354;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABG05354 standard; Protein; 144
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR70491-93 are polypeptides having a whole or partial epitope of a structural protein of Leucocytozoan protozoa encoded by AAQ87587-89. The polypeptides and DNA encoding them are useful in the production of vaccines for the treatment of leucocytozoanosis of fowl.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13-FEB-2002
                                                                                                                                                                                           (HYSE-) HYSEQ INC.
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                                                                                                                                    Liu C,
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27.0%; Pred. No. 5.3e-07;
tive 31; Mismatches 64
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New isolated polynucleotide and encoded polypeptides, useful in

diagnostics, responsible

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forensics, gene mapping, identification of mutations or genetic disorders or other traits and to assess

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Note: The sequence data for this patent did not appear in the printed specification, but was obtained in electronic format directly from WIPO technical contractions of the contraction of the printed specification, but was obtained in electronic format directly from WIPO technical contractions of the contraction of th
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N-PSDB; AAS71153.
                                  WPI; 2001-639362/73
                                                                                           Drmanac RT,
                                                                                                                                                                                                                   31-MAR-2000; 2000US-0540217.
23-AUG-2000; 2000US-0649167.
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                                                                                                                                                       HYSEQ
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; Pred. No. 9.1e-08;
30; Mismatches 42
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Best

Local

Query Match

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Length 254;

Sequence

254 AA;

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and gene mapping, and in recombinant production or the following states are also used in diagnostics as expressed sequence tags polymucleotides are also used in diagnostics as expressed sequence to restore normal activity of (II) or to treat disease states involving (II). (II) is useful for generating antibodies against it, detecting or quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical imaging of sites expressing (II). (II) and (II) are useful for treating disorders involving aberrant protein expression or biological activity. The polypeptide and polymucleotide sequences have applications in the polypeptide and polymucleotide sequences have applications in the polypeptide and polymucleotide sequences have applications in the sequences have applications in the polypeptide and polymucleotide sequences have applications in the polypeptide and polymucleotide sequences have applications of mutations.
                                                                                      diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and amino acid sequences. ABG00010-ABG30377 represent novel human diagnostic amino acid sequences of the invention.

Note: The sequence data for this patent did not appear in the printed specification, but was obtained in electronic format directly from WIPO
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 20; SEQ ID No 37325; 103pp; English
                                                           at ftp.wipo.int/pub/published_pct_sequences
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 147
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39; Conserv
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                                                                      QNDSQQGQLEENNNRFISVDEDSSGNQEEQEEDEEHAGEQDEEDEEEEEMDQESDDFDQS 128
                                                                                                                     GSKRRRTGGSLRGNPSSSQVDEEQMNRVVEEEQQQQLRQQEEEHTARNGEVVGVEPRPGG
                        DDSSREDEHTHTNSVTNSSSIVD-----LPVHQL 157
                                                                                                GEERRRK--EKKGEBEEBBEBBBBBBBBBBBBBBBBB---
EEEEEEEGLSIKYMTSTKTLSDINGFEKLLPVHPI
                                                                                                                                              Conservative
                                                                                                                                                38;
                                                                                                                                              Score 174.5; DB Pred. No. 1.4e-078; Mismatches 4
                                                                                                                                                  44;
   182
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RESULT 3
ABG11280 :
ID ABG11280
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31-MAR-2000;
23-AUG-2000;
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                                                                                                                                                      Human; chromosome mapping;
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                                      30-MAR-2001; 2001WO-US08631.
                                                                11-OCT-2001
                                                                                          WO200175067-A2
                                                                                                                                         food supplement;
                                                                                                                                                                                                                                                           standard; Protein; 254 AA
 2000US-0540217.
2000US-0649167.
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                                                                                                                                             medical
                                                                                                                                             imaging;
                                                                                                                                           gene mapping; gene therapy;
maging; diagnostic; genetic;
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Result
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Maximum DB seq length: 200000000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
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                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being predicted by analysis of the total score distribution.
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/SIDS1/gcgdata/geneseq/geneseqp-emb1/AA2002.DAT:*
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Polyanionic fusion
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ABG03929	G221	7	AAB44672	536	ABG05353	N	96		ABG06903	AAG46504	AAG46505	AAG46506	ABG03977	ABG11274	ABG05360 .	ABG93215	AAG85039	ABG11269	ABG05366	ABG05362	ABG05352	ABG06954	ABG06961	ABG04359	AAR97866	ABP56382	ABG04739	ABB05621	AAB62331	50	AAY96255	362	AAW03627	G1127	ABP56380 .
1 human	Novel human diagno	man	33 huma	1 human	1 human	l human			human	thal		idopsis thal	human	l human	el human		Shrimp white spot	1 human	l human	1 human	l human	human	human	Novel human diagno	Chicken leucocytoz		an	88	acid sequen	ORF 73 prote	۳-	chyr			Polyanionic fusion

## ALIGNMENTS

RESULT 1
ABG11265
ID ABG1
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XX Hom N-PSDB; AAS75452. WPI; 2001-639362/73. 31-MAR-2000; 2000US-0540217. 23-AUG-2000; 2000US-0649167. 30-MAR-2001; 2001WO-US08631. 11-OCT-2001. WO200175067-A2 Homo sapiens. (HYSE-) HYSEQ INC. RT, Liu C, Tang ŢŢ,

Human; chromosome mapping; gene mapping; gene therapy; forensic; food supplement; medical imaging; diagnostic; genetic disorder.

Novel human diagnostic protein #11256.

ABG11265;

18-FEB-2002

(first entry)

ABG11265 standard; Protein; 194

A

New isolated polynucleotide and encoded polypeptides, useful in

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Job time : 5028 secs

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Query
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                                                         GAAGCGCGTCGGATTGACGTGCTGCAGGTTGAAAAA 8423:
                                                                                                                              CGCGCGCGCGCATCAATTTCATCGCCTGCCCGACCTGTTCTCGTCAGGAGTTCGACGTT
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ORGANISM
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AE016835
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AE016878 = AE016478
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Salmonella enterica subsp. enterica serovar Typhi Ty2
Salmonella enterica subsp. enterica serovar Typhi Ty2
Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
Enterobacteriaceae; Salmonella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Deng,W., Liou,S.R., Plunkett III,G., Mayhew,G.F., Rose,D.J.,
Burland,V., Kodoyianni,V., Schwartz,D.C. and Blattner,F.R.
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AE016835.1 GI:291
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                                                                QRAEETRVYGENACQALFQSRPDAIVRAWFIQSVTPRFKEALRWMAANRKAYHVVDEA
ELAKASGTEHHGGVCFLIKKRNGTTVKQWVKQAADQDCVLALEDVANPHNIGGMMRSC
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Salmonella typhi CT18"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="corresponds to !
Salmonella typhi CT18"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /sub_species="enterica"
/db_xref="taxon:209261"
complement(67..486)
                                      SDRGQALFSTTLPEKMVLVLGREYDYLPEAAREPDDLCVKINGTGNVESLNVSVATGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GIRSIPMIMIFKHGQVVDMLNGAVPKAPFDSWLNEAL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /locus_tag="t0261"
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                                                                                                                                                                                                                                                    transl_table
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                                                                                                                                                                                                                                                                                                                                                                                                                 locus
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _type="genomic DNA"
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                                                                                                                                                                                                                                                                                                                                                                                                            tag="t0262"
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.2532)
                                                                                                                                                                                                                                                                                                                         STY2841 from Accession AL513382:
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RMLDMGFAQDIEHIAGETRWRKQTMLFSATLEGDAIKDFAERLLEDPVEVSANPSTRE
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Salmonella typhi CT18"
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kpvgfwvsfglqfvnvkiilygitalstfvlpqtqalnwvigvsillaligtfgnvcw
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Salmonella typhi CT18"
                                                                                                                                                                                                                                            Salmonella typhi CT18"
                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (4901. .6235)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (3296 . . 3883)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (3296. .3883)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AVSKLGEIBYREIPMEVKPEVRVEGGQHLNVNVLRRETLEDAVKHPEKYPQLTIRVSG
YAVRFNSLTPEQQRDVIARTFTESL"
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FVRPAHGYLESWARQGVLLLNTVLTVRAGQAHSHASLGWETFTDKVISLINQHREGVV
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                                                                                                                                                                                                                                                                     'note="corresponds to STY2836
                                                                                                                                                                                                                                                                                                                               'gene="srmB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="yfiE"
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1 MetHisAsnGlnAlaProIleGlnArgArgLysSerThrArgIleTyrValGlyAsnVal 20 Db 635	98.12% Indels: 0 Qy 3 1 Gaps: 0 Db 636 2) x AL627275 (1-145050)	milarity: 99.19% Conservative: 4 Db 636 Similarity: 98.12% Mismatches: 3	Length: 145050 Qy 3	Qy 3	/gene="STY2725" Qy 2 /note="PS01057 SAICAR synthetase signature 1" Db 637 complement(6137. 6141)	2) Qy 2 Synthetase signature 2" Db 638	Oy  16122)  Contry PF01259 SAICAR synt, SAICAR  214 20 E-value 1 26-120"  144 20 E-value 1 26-120"	RKGHVNNKEHFINWKLAEAGIFYQMEKLISDIECUVKKLEMPEVECVYRRRAAGSIV Qy .22  KRLGVEEGMELNPPIFDLFLKNDALHDPMVNSSYCETFGWVSQENLARMKELTYKAND VLKKLFDDAGLIJVDFKLEFGLYKGEVVLGDEFSPDGSRLWDKETLDKMDKDRFRQSL Db 6396	id="CAD02687:1"	Qy 1 ibosylaminoimidazole-succinocarboxamide Db 640	Qy 1 Db 641	.6128) Db 642	complement (52875292) /note="possible RBS"  2y 1	QGYVIAHEVGHHYQKILGJERKVRQQQQQQANSQTEVURLSYRMELQADCFAQVWGHSWQ Qy 12 QQGVLEAGDLEEALNAAQAIGDDRLQQQGQGRVVPDSFTHGTSEQRYSWFKRGFDSGD Db 6426	Qy 1 Db 643	IsI table=11  Note "putative membrane protein"  ein id="CADD2686.1"  Db 643	gue of E. coli P76563; Fasta hit to P76563 Qy identity in 286 aa overlap. Contains Ob 644	Db 645	_reacure complement(3/90"3813)  /gene="STY2723"	9.7e-06" Qy
361 GluAlaArgArgIleAspValGlnGlnValGluLys 372 	341 AsnasnaspMetIleAspGlnLeuGluAlaArgIleArgAlaLysAlaSerGlnLeuAsp 360    :::                :::		21	01 SerIleIleGlyCysValValAsnGlyProGlyGluAlaLeuValSerThrLeuGlyVal 320	281 IleGlyThrValAsnAlaLeuGluGlnArgLeuGluAspIleIleThrProMetAspVal 300 	261 ArgSerArgGlyIleAsnPheIleAlaCysProThrCysSerArgGlnGluPheAspVal 280    ::	41 04	.221 AlaIleGlyLeuGlyLeuLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeu 240	201 GlnProLeuHisLeuGlyIleThrGluAlaGlyGlyAlaArgSerGlyAlaValLysSer 220 	181 LysalaSerAspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLysGlnIleAsp 200 	161 AlaMetArgHisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSerVal 180 	04	41	121 ValValAspCysAlaArgAspLysAsnIleProIleArgIleGlyValAsnAlaGlySer 140 	101 GlyValAspCysLeuArgIleAsnProGlyAsnIleGlyAsnGluGluArgIleArgMet 120 	81 ValProLeuValAlaAspIleHisPheAspTyrArgIleAlaLeuLysValAlaGluTyr 100                     4384 GTCCCGCTGGTTGCCGATATTCACTTCGACTACCGCATTGCGCTGAAAGTAGCGGAATAC 64325	44	504 GTGGAAGCGACGGTTAATCAGATCAAAGCGCTGGAGCGCGTTGGCGCAGATATTGTTCGT 6	64	21 ProileGlyAspGlyAlaProIleAlaValGlnSerMetThrAsnThrArgThrThrAsp 40

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AUTHORS
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Nature 413 (6858), 848-852 (2001)
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on the World Wide Web.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (25-OCT-2001) Submitted on behalf of the Salmonalla sequencing team, Sanger Centre, Wellcome Trust Genome Campus, Hinxcon, Cambridge CB10 18A, UK E-mail: parkhill@sanger.ac.uk
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Parkhill, J.
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Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                /note="Orthologue of E.
to YFFB_ECOLI (118 aa),
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Typhi"
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L007. .2134
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /mol_type="genomic DNA"
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                                                                                   'note="possible RBS"
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81% identity in 118 aa overlap
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AIVTAPAKTATDILAĀFĀĞERFCFMAPDALLASGARADMLVVDEAAAIPĀPLLLQLVS RFPRILLTTTVQGYSGTGRGFLLKFCARF PQLHRFTLKQVRWABECPLENI VSSALI FDDEARAQAPHGGIAISAFVQQAWSKIPALFBAVYQLLSGAHYRTSPLDLRRWMDAPG OHFLQATANNRVAGALMLVEEGGLSAELSQAVWCGFRRPRGNLVAQSLAAHGSDPLAA TLVGRRVSRTAVHPARQREGIGQQLIACACEQAAQCDYLSVSFGYTPELWRFWQRCGF VLVWRGSHRSASGGYTMAALLFLSDAGQRLAQCEHRLRRDADILTQWGBAIPHAA LREQALNDEDWRFBAYBAALFTSLGCLHRLLQYSALFPLAALFGRLEEKASDAEL
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2150. .21
                                                                                                            CARLRISGRKALLALQRAQAAQALIALDAGRTQRLRDVMPGGGDHAG"
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/gene="STY2723"
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to DAPE_ECOLI (375 aa), 94% identity in 375 aa overlap"
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KHQLRYTVDWWLSGQPFLTARGKLVDAVVNAIEHYNEIKPQLLTTGGTSDGRFIARMG
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Percent Similarity:
Best Local Similarity:
Query Match:
DB:
   US-09-921-992-50
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PDFYEERPARGWDIRMESWLFFYPQLGAKLVYEQYYGDEVALFGTDNLQKDPHAVTLG
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TDFVPLVTVGTDYKAGTGDSNDFSVNATVNYQIGTPLAAGLDENNVXLIGHSKGKR
TDFVDRNNFILIEYRFKDFLDFUNLKADATWEHPECVIEDTPEAAVGLECKKWTVNA
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TEGNINGUL TEDEFGEGENNWYNEITVQQDRKIELIVONIADTURSDHSHBASALAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="putative GTP-binding protein"
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                                                                                                                                                                                                                                                                                              /note="putative RBS for engA;
complement(11283..12471)
/genee="yfgL"
/note="synonym: STM2520"
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complement (9692. .11164)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="putative RBS for yfgJ; complement (9692. .11176)
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IASRDKEAGTVTLSSTLPGTFRWKAKADAYGDSNYVDVTFIGDNLSALNAVIYQVKAA
NPVNLIGKEDKHPTVNNAYRFLLWRDKNKDGVFQMSEQLTBEEMALYDYQWEFTGQST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KTLQAIEDANVVLLVIDAREGISDQDLSLLGFILNSGRSLVIVVNKWDGLSQEVKEQV
KETLDFRLGFIDFARVHFISALHGSGVGNLFESVREAYDSSTRRVSTAMLTRIMIMAV
EDHQPPLVRGRRVKLKYAHAGGYNPPIVVIHGNQVKDLPDSYKRYLMNYFRKSLEVMG
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complement (9382. .9615)
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/protein_id="AAL21412.1"
/db xreff="G1:1.6421062"
/trānslation="MEITCPVCHHALERNGDTAHCETCAKDFSLQALCPDCRQPLQVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="similar to E. coli orf, hypothetical protein (AAC75563.1); Blastp hit to AAC75563.1 (83 aa), 63% identity in aa 13 - 83"
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transl_table=11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'gene="engA"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaMetArgHisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSerVal
                               AsnAsnAspMetIleAspGlnLeuGluAlaArgIleArgAlaLysAlaSerGlnLeuAsp 360
                                                                                                                                                                                             ThrGlyGlyAsnLysLysSerGlyLeuTyrGluAspGlyValArgLysAspArgLeuAsp 340
                                                                                                                                                                                                                                                                                                          SerIleIleGlyCysValValAsnGlyProGlyGluAlaLeuValSerThrLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                              IleGlyThrValAsnAlaLeuGluGlnArgLeuGluAspIleIleThrProMetAspVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgSerArgGlyIleAsnPheIleAlaCysProThrCysSerArgGlnGluPheAspVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaAlaAspProValGluGluIleLysValGlyPheAspIleLeuLysSerLeuArgIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaIleGlyLeuGlyLeuLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlnProLeuHisLeuGlyIleThrGluAlaGlyGlyAlaArgSerGlyAlaValLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LysAlaSerAspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLysGlnIleAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCATGCGCCATGTCGATCTCGATCGTCTCAACTTTGATCAGTTCAAAGTGAGCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuGluLysAspLeuGlnGluLysTyrGlyGluProThrProGlnAlaLeuLeuGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGGTGGACTGCGCGCGACAAAAACATCCCTATTCGTATCGGCGTAAACGCCGGATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValValAspCysAlaArgAspLysAsnIleProIleArgIleGlyValAsnAlaGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyValAspCysLeuArgIleAsnProGlyAsnIleGlyAsnGluGluArgIleArgMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCCCGCTGGTTGCCGATATTCACTTCGACTACCGCATTGCGCTGAAAGTAGCGGAATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValProLeuValAlaAspIleHisPheAspTyrArgIleAlaLeuLysValAlaGluTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValSerValProThrMetAspAlaAlaGluAlaPheLysLeuIleLysGlnGlnValAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGGAAGCGACGGTTAATCAGATCAAAGCGCTGGAGCGCGTTGGCGCAGATATTGTTCGT
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                                                                                                                                                                                                                                                                                                                                                                                        ATCGGCACGGTGAACGCGCTGGAGCAGCGTCTGGAAGATATCATCACCCCGATGGACGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCGCGCGCGCATCAATTTCATCGCCTGCCCGACCTGTTCTCGCCAGGAGTTCGACGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGCCGACCCGGTGGAAGAGATCAAAGTCGGTTTCGATATTCTGAAGTCGCTGCGCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGATCGGTTTAGGTCTGCTGTTATCGGAAGGTATCGGCGACACGCTGCGCGTATCGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAAGCGTCCGATGTATTCCTTGCCGTTGAGTCTTATCGTTTGTTGGCTAAACAGATCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGAAAAAGATCTGCAGGAAAAATACGGTGAGCCGACGCCGCAGGCGTTGCTGGAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCGTTGACTGCGTATCAACCCCGGCAATATCGGTAACGAAGAACGTATTCGTATG
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                                                                                                                                                                                                                                                                        TCGATCATCGGTTGCGTAGTGAACGGGCCGGGCGAAGCGCTGGTATCGACGCTGGGCGTG
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15130

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15190 140 15250 120

15310 100 15370 90 15430 60 15490 40 15550 20

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                                                                                                                                                                                                                                                                                                        This sequence was finished as follows unless otherwise noted: all regions were double stranded, sequenced with an alternate chemistries or covered by high quality data (i.e., phred quality >= 30); an attempt was made to resolve all sequencing problems, such as compressions and repeats; all regions were covered by sequence from more than one mll subclone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Coding sequences below are predicted from manually evaluated computer analysis, using similarity information and the programs; GLIMMER; http://www.tigr.org/softlab/glimmer/glimmer.html and GeneMark; http://opal.biology.gatech.edu/GeneMark/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (29-MAR-2001) Genome Sequencing Center, Department Genetics, Washington University School of Medicine, 4444 Fore Park Boulevard, St. Louis, MO 63108, USA COMMENT Supported by NIH grant 5U 01 AI43283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          McClelland,M., Sanderson,K.E., Spieth,J., Clifton,S.W.,
Latreille,P., Courtney,L., Porwollik,S., Ali,J., Dante,M., Du,F.,
Hou,S., Layman,D., Leonard,S., Scott,, Holmes,A.,
Grewal,N., Mulvaney,E., Ryan,E., Sun,H., Florea,L., Miller,W.,
Stoneking,T., Nhan,M., Waterston,R. and Wilson,R.K.
Complete genome sequence of Salmonella enterica serovar Typhimurium
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Salmonella typhimurium LT2
Salmonella typhimurium LT2
Bacteria; Proteobacteria; Gamma
Enterobacteriaceae; Salmonella.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Encyclopedia of Genes and Genomes; http://www.genome.ad.jp/kegg/,
and Pedro Romero and Peter Karp at EcoCyc;
http://ecocyc.PangeaSystems.com/ecocyc/
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           http://kinich.cifn.unam.mx:8850/db/regulondb_intro.frameset
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complement(110.
                                                                             complement (110.
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                                                                                                                                                                                                                                                                                        location/Qualifiers
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                                                                                                                                xref="taxon:99287"
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ILDDAGUVQKHAHSTLEWMAN

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGDPAVATELLLKDLSTDAGGGSDDDEI PEGPVVDENVHVVIHEKDSNTNLLKNSGT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="synonym: STM2516"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QPQAGVAVLLTRDYAYSRGAVDKQYIEPGVIGEPVPFTTSPANMMLAPVAPAGTAVAF
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/db_xref="GI:16421060"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VETSLTHLCGSQENIASLDDLKALQSVIGTLQWPTTSSWDYVSQDEGQSNKYYCSFNE
TTGQTTCTREKATTSGLGSCRVP"
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                                                                                                                                                        'gene="sinH"
                                                                                                                                                                                                                                                                                                                                                                                                      /gene="sinI"
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_table=11
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VLTSMFGVGVRTAARLTEVACRAFASAAHLAAYAGLAPVTRRSGSSIRGEHFSRRGN
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/product="nahancer of serine sensitivity" \\
/protein_id="AAP17893.1" \\
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HTVGRGSERSPVLLALDYNPTGDKEAPVYACLVGKGITFDSGGYSIKQTAFMDSMKSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /locus tag="S2742"
/function="putative enzyme; Not classified"
/function="putative enzyme; Not classified"
/note="residues 1 to 427 of 427 are 92.50 poresidues 30 to 456 of 456 from Escherichia of 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="REP (repetitive extragenic palindromic) contains 1 REP sequence" complement (10179. .11462)
                                                                                                                                                                                                                                                                                           complement (11521. .11721)
                                                                                                                                                                                                                                                                                                                                                                                                                           MGGAATVTGALAFAIMRGLNKRVKLFLCCADNLISGNAFKLGDIITYRNGKKVEVMNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
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/note="residues 1 to 258 of 258 are 94.96
residues 4 to 261 of 261 from Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (9261. .10037)
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/locus_tag="S2740"
/note="truncated"
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/locus_tag="
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/transl_table=
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2 (bases 1 to 290380)

Rournier, Goldberg, M.B., Burland, V., Venkatesan, M.M., Deng, W., Fournier, G., Mayhew, G.F., Plunkett, G. III, Rose, D.J., Darling, A., Mau, B., Perna, N.T., Payne, S.M., Runyen-Janecky, L.J., Zhou, S., Schwartz, D.C. and Blattner, F.R.
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Shigella flexneri 2a str. 2457T
Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
Enterobacteriaceae; Shigella.
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/db_xref="G1:30042163"
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DCLRINGGNIGNERIRMVUDCARDKNIPIRIGVNAGSLEKDLOEKYGEFTPQALLES
DCLRINGGNIGNERIRMVUDCARDKNIPIRIGVNAGSLEKDLOEKYGEFTPQALLES
DCLRINGGNIGNERIRMVUDCARDKNIPIRIGVNAGSLEKDLOEKYGEFTPQALLES
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                                                                                                                                               KSAIGLGLLLSEGIGDTLRVSLAADÞVEEIKVGFDILKSLRIRSRGINFIACPTCSRQ
EFDVIGTVNALEQRLEDIITPMDVSIIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGV
RKDRLDNNDMIDQLEARIRAKASQLDEARRIDVQQVGKIIT"
                                                                                                           complement (1236. .2249)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="residues 1 to
residues 1 to 372 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (82. .1209)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (82. .1209)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="gcpE"
/locus_tag="S2733"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="gcpE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mol_type="genomic DNA"
strain="2457T"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Shigella flexneri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           serotype="2a"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . .290380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:30042162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               xref="taxon:198215"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tag="S2733"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         290380 bp DNA
str. 2457T section 10
.2249)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of 375 are 96.23 pct identical to from Escherichia coli K-12 :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2a str. 2457T"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear BCT 22-APR-20 of 16 of the complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCT 22-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6563
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
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/note="insertion element"
/note="insertion element"
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complement(6534..7730)
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complement (6534. 7730)
/locus_tag="S2738"
/function="IS, phage, Tn; Transposon-related functions"
/note="residues 1 to 398 of 398 are 90.95 pct identical
residues 1 to 398 of 398 from GenPept :
-gb|AAK18438.1|AF348706_127 (AF348706) putative
transposase for IS110 [Shigella flexneri]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MSSQLVTPENVTTKDGKINLLDLNRQQMREFFKDLGEKTFRADQ
VMKWMYHYCCDNFDEMTDINKVLRGKLKEVAEIRAPEVVESQRSSDGTIKWAIAVGDQ
RVETVYIPEDDRATLCYSSQVGCALECKECSTAQQGENRNLRVSEIIGQVWRAAKIVG
AAKVTGQRFIINVVMMGMGEPLLNLNNVVPAMEIMLDDFGGLSKRRVLLSTGGVVPA
LDKLGDMIDVALAISLHAPRIDEIRDEIVFINKKYNIETFLAAVRRYLEKSNANQGRVT
IEYVMLDHVNDGTEHAHQLAELLKDTPCKINLIPWNPFPDAPYGRSSNSRIDRFSKVL
MSYGTTTIVRKTRGDDIDAACGQLAGDVIDRTKRTLRKRMQGEAIDIKAV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="nucleoside diphosphate kinase"
(protein id="AAP17891.1"
(db_xref="G1:304166"
(translation="MAIERTESIIKPNAVAKNVIGNIFARFEAAGFKIVGTKMLHLTV
EQARGFYAEHDGKPFFDGLVEFMTSGPIVVSVLEGENAVQRHRDLLGATNPANALAGT
LRADYADSLTENGTHGSDSVESAAREIAYFFGEGEVCPRTR"
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RDIEEDKAPADLASTFLRGYIRSYARLVHIPEELLPGLEKQAFLRAAKVAPMQSFSL
GKRRKKRDGWLMTFYMLLFVVIGLSGAWMWQDHELLPGLEKQAFEITMADQSSAELSSNSFQ
GQSVPLNTSTTTDPATTSTPPASVDTTATNTQTPAVTAPAPAVDPQQNAVVSPSQANV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /function="enzyme; Purine ribonucleotide biosynthesis" /note="residues 1 to 143 of 143 are 100.00 pct identical to residues 1 to 143 of 143 from Escherichia coli K-12 :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (3838. .4269)
/gene="ndk"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /locus_tag="S2735"
/note="residues 1
residues 1 to 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DTAATPVPTÄATTPDGAAPLPTDQAGVTTPAADPNALVMNFTADCWLEVTDATGKKLF
SGMQRKDGNLNLTGQAPYKLKIGAPAAVQIQYQGKPVDLSRFIRTNQVARLTLNAEQS
                                                                                                                                                                                                                                                                                                                                                                                    /locus_tag="S2737"
/note="truncated"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement (3838. .4269)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (2534. .3688)
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                                                                                                                                                                                                                                                                                                                                                                                                                                           'gene="pbpC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement (4418. .6517)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /locus_tag="S2736"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="hypothetical
/protein_id="AAP17890.]
/db_xref="GI:30042165"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="yfgB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /locus_tag="S2735"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="yfgB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="putative membrane
/protein_id="AAP17889.1"
/db_xref="GI:30042164"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /function="putative membrane; Not classified"
/note="residues 1 to 337 of 337 are 80.71 pct
residues 1 to 337 of 337 from Escherichia col
                                                                                                                                                                                                                                                                                                                                                               pseudo)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=1/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tag="S2736"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _tag="S2735"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              table=11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            to 384 of 384 are 99.47 of 384 from Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             al protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pct identical to
coli K-12 :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pct identical to coli K-12:
                                                                                                identical to
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SdC

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Alignment Scores:
Pred. No.:
                                                                              /Tocus tag="SF2562"
/Codon start=1
/Codon start=1
/transT_table=11
/product="putative membrane protein"
/product="putative membrane protein"
/product="putative membrane protein"
/protein id="ANM44062_1"
/db_xref="G1:24052936"
/transIation="MNTEATHDQNEALTTGARLENAREQLGLSQQAVAERLCLKVSTV
/translation="MNTEATHDQNEALTTGARLENAREQLEITTMADQSSAELSSNSEQ
GGSVPLNTSTTTDPATTSTPPASUDTTATNTGTPAVTAPAPAUPDQNAVVSPSQANV
GGSVPLNTSTTTDPATTSTPPASUDTTATNTGTPAVTAPAPAUPDQNAVVSPSQANV
DTAATPVPTAATTPDGAAPLPTDQAGVTTPAADPNALVMNFTADCWLEVTDATGKKLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="orf, conserved hypothetical protein"
/protein id="ANN44061.1"
/db_xref="g1:24052935"
/translation="MHNQAPIQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEAT
VNQIKALERVGADIVRVSVPTMDAAEAFKLIKQRVNVPLVADIHFDYRIALKVAEYGV
VNQIKALERVGADIVRVSVPTMDAAEAFKLIKQRVNVPLVADIHFDYRIALKVAEYGV
DCLRINPGNIGNEERIRNVUDCARDKNIFIRIGVNAG5LEKDLGKYGEPTPQALLES
AMRHUDHLDRLNFDQFKVSVKASDVFLAVESTRLAKQIDPHLIGITEAGGARSGAV
KARIGLGLILSBGIGDTLRVSLAADPVEBIKVGFDILKSIRIRSRGINFIACPTCSRQ
EFDVIGTVNALEGGREBDIITPMDVSIIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /locus_tag="SF2561"
/note="Residues 1 to 372 of 375 are 99 pct residues 1 to 372 of a 72 aa protein from coli O157:H7 EDL933 ref: NP_289068.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /tranlation="Maknio, irgmudylpgetaimoriegtikuvlgsygvseirle
Ivgqtplekraigevtdvvekemytfedringdsltlepegtaggvrag ehgllynge
Qrlwyigpmerherpokgryrgphologesvellgeddelbellmitarwaralgifeh
VTLELNS IGSLEARANYRDALVAFLEGHKEKLDEDCKRRMYTNPLRVLDSKNPEVQAL
UNDAPALGDYLDESREHFAGLCKLLESAGIAYTVDELVKLDYNRRTVFEWYTNSL
GSQGTVCAGGRYDGLGRAIPANGFAMGLERLVLLVQANNFEFKADFVNDIYL
ASGADTOSAAMALAERLRDELLGVKLMTNHGGGNFKKQFFARADKWGARVAVVLGESEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="hiss"
/locus_tag="SF2560"
complement(5138. .6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="Residues 1 to 424 of 424 are 99 residues 1 to 424 of a 424 aa protein i coli 0157.HT EDL933 ref: NP_289067.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tränslation="MEIYENNENDQVEAVKRFFAENGKALAVGGILGVGALTGWRYWNS
HQVDSARSASLAYQNAVTAVSEGKPDSIPAAEKRAAENCNTYGALASLELAQQFVDKN
ELEKKAAQLCQGLADTSBENILKAVINURLARVQVQLKQADAALKTLDTIKGEGWAAIV
ADLRGEALLSKGDKQGARSAWEAGVKSDVTPALSEMMQMKINNLSI"
                                                                                                                                                                                                                                                                                                                                                                                                 complement (7669.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (7669. .8682)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RKDRLDNNDMIDQLEARIRAKASQLDEARRIDVQQVGKIIT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /locus_tag="SF2561"
complement(6515. .7642)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ANGTAVVKDLRSGEQTAVAQDSVAAHLRTLLG"
complement(6515...7642)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="histidine tRNA synthetase"
/protein_id="AAN44060.1"
/db_xref="GI:24052934"
                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="yfgA"
/locus_tag="SF2562"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="Residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /protein_id="AAN44059.
/db_xref="GI:24052933"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'gene="gcpE"
1.2e-133
1855.00
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _tag="SF2560"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        conserved hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .6412)
  Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                   .8682)
  10225
370
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Escherichia
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Best Local Similarity
Query Match:
DB:
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Score:

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Shigella
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Liu,H., Yang,J., Yang,F., Qu,D., Zhang,X.B., Zhang,J.Y., Yang,G
Wu,H.T., Dong,J., Sun,L.L., Xue,Y., Zhao,A.L., Gao,Y.S., Zhu,J.
Kan,B., Chen,S.X., Yao,Z.J., He,B.K., Chen,R.S., Ma,D.L.,
Qiang,B.Q., Wen,Y.M., Hou,Y.D. and Yu,J.
Genome sequence of Shigella flexneri 2a: insights into
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Shigella flexneri 2a str. 301
Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
Enterobacteriaceae; Shigella.
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/note="Residues 1 to 430 of 430 are 97
/note="Residues 1 to 456 of a 456 aa protein coli K12 ref: NP_417004.1"
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ADFVADLRAPTPSAAAEVVSRNQQELLRQVQSARQRLEMAMDYYLANRTRRFTQIHHR
LQQQHPQLRLARQQTMLERLQKRMSFALENQLKRAGQQQQRLTQRLNQQNPQPKIHRT
QTRIQQLEYRLAEILRAQLSATRERFGNAVTHLEAVSFLSTLARGYSVTTATDGNVLK
                                                          TFRPQHGQQVLVRANITLYEPRGDYQIIVESMQPAGEGLLQQKYEQLKAKLQAECLFD
QQYKKPLPSPAHCVGVITSKTGAALHDILHVLKRRDPSLPVIIYPTSVQGDDAPGQIV
RAIELANQRNECDVLIVGRGGGSLEDLWSFNDERVARAIFASRIPVVSAVGHETDVTI
                                                                                                                  /product="exonuclease VII, large subunit"
/protein_id="AAN44055.1"
/db_xref="GI:24052929"
/translation="MGQVWISGEISNFTQPASGHWYFTLKDDTAQVRCAMFRNSNRRV
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/transl_table=
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'strain="301"
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from Escheric
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residues 1 to 206 of a 206 aa protein from
coli K12 ref: NP_417008.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Residues 1 to 392 of 392 are 99 pct residues 1 to 392 of a 392 aa protein from coli k12 ref: NP 417007.1"
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/gene="yfgL"
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/gene="yfgL"
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                                                                                                                                                                                                                                                                                                                                                                                                                           complement (4500.
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complement(1437. .1688)
                                                                                                                                                                                                                                                                                                                                                                        /gene="yfgM"
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/transl_table=11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KVKQVKTGEMLTTRLEDGWIESEVKNIQPVKKSRKKVH"
complement(1437. .1688)
codon_start=1
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/protein_id="AAN44056.1"
/branslation="MNVEGMATGGIHMELHCPKCQHVLDQDNGHARCPSCGEFIEMKA
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/transl_table=
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057.1"
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gene

SgS

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FSLIKLAAQDKDVTRIFVNDAIKQDLCLDAGTDRDWLRKVRPWFOHRAHVVPLAKCPA
DSLBCEDQPLPPPGGGCGAELOSWFEPPKPGTTKPEKKTPPPLPPSCQALLDEHVI"
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/note="Escherichia coli K-12 ortholog: b2328; Escherichia
coli O157:H7 ortholog: z3591"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /locus_tag="c2874" complement(5338. .6162)
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PDALAVAEQNI EEHGL I HNVI PIRSDLFRDLPKVQYDL I VTNPPY VDAEDMSDLPNEY
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LGEPVFDRLDADIAHALMSINAVKGVEIGDGFDVVALKGSQNRDEITKDGFQSNHAGG
ILGGISSGQQIIAHMALKPTSSITVPGRTINRFGEEVEMITKGRHDPCVGIRAVPIAE
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/function="enzyme; Amino acid biosynthesis: Chorismate"
/note="Escherichia coli K-12 ortholog: b2329; Escherichia
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                                                                                                     ERVLVPRSPIGELINNKFAGLISKQPQHILDMCTGSGCIAIACAYAFPEAEVDAVDIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /EC number="2.11.72"
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/note="Escherichia coli K-12 ortholog: b2330;
coli O157:H7 ortholog: z3593"
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/transl_table=11
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/transl_table=11
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Welch, R.A., Burland, V., Plunkett, G.D. III, Redford, P., Roesch, P.,
Rasko, D.A., Buckles, E.L., Liou, S.-R., Boutin, A., Hackett, J.,
Stroud, D., Mayhew, G.F., Rose, D.J., Zhou, S., Schwartz, D.C.,
Perna, N.T., Mobley, H.L.T., Donnenberg, M.S. and Blattner, F.R.
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Welch,R.A., Burland,V., Plunkett,G.D. III, Redford,P., Roesch Rasko,D.A., Burkles,E.L., Liou,S.-R., Boutin,A., Hackett,J., Stroud,D., Mayhew,G.F., Rose,D.J., Zhou,S., Schwartz,D.C., Perna,N.T., Mobley,H.L.T., Donnenberg,M.S. and Blattner,F.R. Extensive Mosiac Structure Revealed by the Complete Genome Se of Uropathogenic Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
Submitted (20-UTM-2002) Genetics Laboratory, University of Wisconsin - Madison, 445 Henry Mall, Madison, WI 53706, USA Location/Qualifiers
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Escherichia coli CFT073
Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
Enterobacteriaceae; Escherichia.
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AE016764.1 GI:26109116
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SACATSAHCIGNAVEGIQLGKKDIVFAGGEBULTKAMACEFDAMGALSTKVNDTPEKA
SRCTYDAHRDGFVIAGGGGMVVVEELEHALARGAHIYAEIVGYGATSDGADMVAPSGEG
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AVRCMKMAMHGVDTPIDYLNSHGTSTPVGDVKELAAIREVFGDKSPAISATKAMTGHS
LGAAGVQEAIYSLLMLEHGFIAPSINIEELDEQAAGLNIVTETTDRELTTVMSNSFGF
                                                                                                                                                                                                                                                                                                                                                                                                 /locus_tag="c2869"
complement(163. .1383)
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                                                                                                                                                                                                                                                       /noté="Escherichia coli K-12 ortholog: b2323; Escherichia
oli O157:H7 ortholog: z3586"
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/strain="CFT073"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        organism="Escherichia coli CFT073"
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                                                                                                                                                                                                                                                                                                function="enzyme; Fatty acid and phosphatidic acid
                                                                                                                                                                                                                                                                                                                                        'EC_number="2.3.1.41"
                                                                                                                                                                                                                                                                                                                                                                                 'gene="fabB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="fabB"
                                                                                                                                                                                                                                                                                                                                                              ocus_tag="c2869"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                xref="taxon:199310"
plement(163. .1383)
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                                                           /function="putative structure"
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coli 0157:H7 ortholog: z3590"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /locus_tag="c2872" complement(3981. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GDDHSAQAVHTTVSQSLEKAIGAGELSPRDQALVTDMWEHLFQQASQQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement (3669. .3947)
/gene="yfcL"
                                                                                                                                                                    complement (4529. .5338)
                                                                                                                                                                                                                                 complement (4529. .5338)
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                     codon_start=1/transl_table=
                                                                                                                                                                                                                                                         LQNYYHTPELTAEQFPWPEALN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'gene="yfcM"
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product="Hypothetical protein yfcA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        function="putative"
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                                                                                                                            locus_tag="c2873"
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                                                                                                                                                                                         _tag="c2873"
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/translation="mnsthhyeQlibifnscfadefntrlikGddefiylpadaevpy
NRIVFAHGFYASAIHBISHWCIAGKARRDLVDFGYWYCPDGRDAQTQSQFEDVEVKPQ
ALDWLFCVAAGYPFNVSCDNLEGDFEPDRVVFQRRVHAQVMDYLANGIPERPARFIKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Escherichia coli K-12 ortholog: b2325; Escherichia coli 0157:H7 ortholog: z3588"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VYDDLFMFAALGSRGLCSAPLCAEILAAQMSEEPIPMDASTLAALNPNRLWVRKLLKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /locus_tag="c2870"
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coli 0157:H7 ortholog: z3587"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         translation="MIAEFESRILALIDGMVDHASDDELFASGYLRGHLTLAIAELES"
b2327; Escherichia
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LTATISLEVATATISLKEVRQLLAALKIDHRTLFKYSFGTERMYBSVATAQCAQYK
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                                                                                                            /gene="ECs3129"
8677. .9603
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Eldlavetaeielpeldvlrnnatefravniarpldneenwpllldalipvantcemi
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6038. .7297
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LLDHAERDGLDGFITITGGKLMTYRLMAEWATDAVCRKLGNTRPCTTADLALPGSQEP
AEVTLRKVISLPAPLRGSAVYRHGDRTPAWLSEGRLHRSLVCECEAVTAGEVQYAVEN
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8677. .9603
/gene="ECs3129"
/note="similar to YFAD_ECOLI gi|1788577 percent identity
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                                                                                                                                                                                                                                          TYGFKKENYPTSQAIGAPLFRQIEESGADLVVTDCETCKWQIEMSTSLRCEHPITLLA
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7294. .8484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VLQTATRGEWYKGDFFAPQPWQQFGVTTDQTLRPSQAGQTIENLFTIGSVLGGFDPIA
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DEVKKVTCKNGVVNEIWTRNHADIPLRPRFAVLASGSFFSGGLVAERNGIREPILGLD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100 in 396 aa (Conserved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QGCGGGVCAVSALHAAQQIAQRAGGQQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VQPIAWGDALRESEFTRWVYQGLCGLEKEQKDAL"
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/db_xref="GI:13362596"
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/product="anaerobic sn-glycerol-3-phosphate dehydrogenase
large subunit"
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100 in 542 aa (Conserved in E.coli K-12)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="similar to GLPC_ECOLI gi|1788576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'gene="ECs3128"
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                                                                                                   IleGlyThrValAsnAlaLeuGluGlnArgLeuGluAspIleIleThrProMetAspVal
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Escherichia coli 0157:H7 DNA,
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Kurokawa,K., Ohnishi,M., Hattori,M., Tatsuno,I., Abe,H., Iida
Yamamoto,K., Ohnishi,M., Hayashi,T., Yasunaga,T., Honda,T.,
Sasakawa,C. and Shinagawa,H.
                                              Complete genome sequence of enterohemorrhagic Escherichia coli 0157:H7 and genomic comparison with a laboratory strain K-12 DNA Res. 8 (1), 11-22 (2001)
                                                                                                                                               Hayashi,T., Makino,K., Ohnishi,M., Kurokawa,K., Ishii,K., Yokoyama,K., Han,C.-G., Ohtsubo,E., Nakayama,K., Murata,T., Yanaka,M., Tobe,T., Iida,T., Takami,H., Honda,T., Sasakawa,C., Ogasawara,N., Yasunaga,T., Kuhara,S., Shiba,T., Hattori,M. and
                                                                                                                                                                                                                                                                                                                                    Complete nucleotide sequence of the prophage VTI-Sakai carrying the Shiga toxin I genes of the enterohemorrhagic Escherichia coli O157:H7 strain derived from the Sakai outbreak Gene 258 (1-2), 127-139 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                Shinagawa, H.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Comparative analysis of the whole set of rRNA operons between an enterohemorrhagic Escherichia coli O157:H7 Sakai strain and an Escherichia coli K-12 strain MG1655
Syst. Appl. Microbiol. 23 (3), 315-324 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ohnishi,M., Murata,T., Nakayama,K., Kuhara,S., Hattori,M., Kurokawa,K., Yasunaga,T., Yokoyama,K., Makino,K., Shinagawa,H.
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Escherichia coli 0157:H7
Bacteria, Proteobacteria; Gammaproteobacteria; Enterobacteriales;
Enterobacteriaceae; Escherichia.
                                                                                                                               Shinagawa, H.
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AUTHORS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5 (bases 1 to 29662/)
Ohnishi, M., Kurokawa, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genome project
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                  RKNFALAMPYLVEQGFSRGDLGFALSGISIAYGFSKFIMGSVSDRSNPRVFLPAGLIL
AAAVKLFMGFVPWAYSSIAVWFVLLFLCGWFQGMWPPCGRTWHWWSQKERGGIVSV
WNCAHNVGGGIPPLLFLLGMAWFNDWHAALYMPAFCAILVALFAFAMMRDTPQSCCLP
PIEEYKNDYPDDYNKKABQBLTAKQIFMQVULDKKLLWYIAIAWVFYYLLRYGILDWS
PTYLKEVKHFALDKSSWAYFFYEYAGIPGTLLCGWMSDKVFRGNRGATGVFFMTLVTI
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/transl_table=11
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/product="glycerophosphodiester phosphodiesterase"
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/db_xref="GI:13362594"
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EHTLPAKAMAYAQGADYLEQDLVMTKDDHLVVLHDHYLDRVTDVADRFPDRARKDGRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="Ments Hilsrom Liqunclopte lykesogtaklefecdeflki
sorryglststdstanllafetkasdalds iktgkidhykygfvpirhfvehvitykn
efaadyeepytliftroennegilsvesskegfisortininevetaini inehvikent
HNTVOSPTEKVISKINSSDREYKTSSKESIKSOLYSDQRNIQTCYYILRKNTEWYKVA
SSEERVDKFKNSSKE IKNTYKOIVQAQKKLNQKKYINKLSGELLDITDKKLAFLINDS
FSYTROFFASSKOEKNIFTFDNSKFVDFKEKEGLMVQHSNGQLVITGKYCPEGYQTAF
TOBQYDKLIRYINIFFTFEKLE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YAIDFTLDEIKSĹKFTEGFĎIENGKKVQTYPGRFPMGKSDFRVHTFEEEIEFVQGLNH
STGKNIGIYEIKAPMFHHQEGKDIAKKTLEVLKKYGYTYGKDDKVYLQCFDADELKRI
KNELEPKMGHJULUVQLIAYTDMMFTQQKQPDGSWNYKVDJMMFKFGAMKQVARYADG
IGPDYHMLIEETSQPGNIKLTGMVQDAQQNKLVVHPYTVRSDKLPEYTTDVNQLYDAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (1708. .2784)
/gene="ECs3124"
complement (1708. .2784)
/gene="ECs3124"
                                                                                                                                                                                                                                                                                                                                       /note="similar to GLPT_ECOLI gi|1788573 percent identity
99 in 452 aa (Conserved in E.coli K-12)"
                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (2789. .4147)
/gene="ECs3125"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="similar to GLPQ_ECOLI gi|1788572 percent identity 99 in 358 aa (Conserved in E.coli K-12)"
                                                                                                                                                                             /product="sn-glycerol-3-phosphate permease"
/protein_id="BAB36548.1"
/db_xref="GI:13362595"
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/transl_table=11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YNKAGVNGLFTDFPDKAVKFLNKE"
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/db_xref="GI:13362593"
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                                                                                                                                                                                                                                                                                                                                                                                          /gene="ECs3125"
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/transl_table=11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /mol_type="genomic DNA"
/strain="0157:H7"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="ECs3123"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /sub_strain="RIMD 0509952"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         db_xref="taxon:83334"
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                                                                                                                                                                                                          VVAQDGTPLWREADADGIWRYPVTIEDVSPRYLEALINYEDRWFWKHPGVNPFSVARA
AWQDLTSGRVISGGSTLTWQVARLLDPHRKTFGGKIRQWRALGUEWHLSKREILTLY
LNRAPFGGTLGGIGAASWAYLGKSPAULSYSEAMLAVLPQAFSRLRPDWHLSKREILTLY
LNRAPFGGTLGGIGAASWAYLGKSPAULSYSEAMLAVLPQAFSRLRPDWHEREADA
RNKVLERMAVQGWSREQVKESREEPIWLAPRQMPQLAPLFSRMMLGKSKSDKITTTL
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NSIRSPGSVLKEPFYYGLALDEGLIHPASLLQWPRRTGDYRPGNFDSGFHFJELBHAF
LVRSLMLPAVQVLEAYGPKRFAAKLRNVGLPLYLPNGAAPNLSLILGGAGAKLEDMAA
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AWKTGTSYSYRDAWAIGVNARYYIGINFGRPGDGNCRRLATWLLDGSQPPTLLLPEQEG
RSANLPEDPRNSYTROYICWFGGQSLPEGDGNCRRLATWLLDGSQPPTLLLPEQEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="factor Sigma70; predicted +1 start at 2642935"
complement (4413. .6725)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LRADYADSLTENGTHGSDSVESAAREIAYFFGEGEVCPRTR"
complement(4322. .4350)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MSQLVTPENVTTKDGKINLLDLNRQQMREFFKDLGEKPFRADQ/translation="MSGLVTPENVTTKDGKINLLDLNRQQMREFFKDLGEKPFRADQ/translation="MSGLVTPENVLRGKLKEVAEIRAFEVVEQRSSDGTIKMAIAVGDQ RVETVYIPEDDRATLCVSSQVGCALECKECSTAQQEFMRNLRVSEIIGQVWRAAKIVG AAKVTGQRFITNVVMMGMGEPLLNLNNVVPAMEIMLDDFGFGLSKRRVTLSTSGVVPA LDKLGDMIDVALAISHAPNDBIRDEIVJINKKYNIETFLAAVRRYLEKSNANQGRVTIEYMLDHVNDGTEHAHQLAELLKDTPCKINLIPMNPFPGAPYGRSSNSRIDRFSKVLIEYMLDHVNDGTEHAHQLAELLKDTPCKINLIPMNPFPGAPYGRSSNSRIDRFSKVL
                                                                                   complement (6726. .11687)
                                                                                                                           complement (6726.
                                                                                                                                                   VTLHLTDKGDYQLLVMDDVGQIATVKFVMQ"
                                                                                                                                                                     INGIRFPIWLDENGKRVAADCPQARQEMINVWPLPLEPWLPASERRAVRLPPASTSCP
PYGHDAQLPLQLTGVRDGAIIKRLPGAAEATLPLQSSGGAGERWWFLNGEPLTERGRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /function="putative enzyme; Not classified"
/note="f770; This 770 aa ORF is 31 pct identical (43 gaps)
to 480 residues of an approx. 720 aa protein PBPF_BACSU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="factor Sigma70; predicted +1 start at 2642399"
complement(3833. .4264)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="factor Sigma70; predicted +1 start
complement(3786. .3814)
                      /function="orf; Unknown"
/note="f1653; f1653"
                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="putative peptidoglycan enzyme"
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/db_xref="GI:1788867"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="synonym: b2519"
complement(4413. .6725)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="maiertfSIIKpnavaknviGnifarfeaagfKivGTkmLhLtv
EQARGFYAEHDGKÞFFDGLVEFmTSGÞIVVSVLEGENAVQRHRDLLGATNÞANALAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="synonym: b2518"
complement(3833. .4264)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MSYGFTTIVRKTRGDDIDAACGQLAGDVIDRTKRTLRKRMQGEAIDIKAV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /prounct="orf, hypothetical protein"
/protein_id="AAC75570.1"
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/r=n-1--
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      product="nucleoside diphosphate kinase"
protein_id="AAC75571.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          function="enzyme; Purine ribonucleotide biosynthesis"
note="f143; 100 pct identical to NDK_ECOLI SW: P24233"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="f384; 100 pct identical to YFGB_ECOLI SW: P36979"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (2529. .3683)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'EC_number="2.7.4.6"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               function="orf; Unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P38050"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     xref="GI:1788866"
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Supported by NIH grants HG00301 and HG01428 (from the Human Genome Project and NCHGR). The entire sequence was independently determined from E. coli K12 strain MG1655. Predicted open reading frames were determined using GeneMark software, kindly supplied by Mark Borodovsky, Georgia Institute of Technology, Atlanta, GA, 30332 (e-mail: mark@amber.gatech.edu). Open reading frames that have been correlated with genetic loci are being annotated with CG site Nos., unique ID nos. for the genes in the E. coli Genetic Stock Center (CGSC) database at Yale University, kindly supplied by
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Blattner, F.R., Plunkett, G. III, Bloch, C.A., Perna, N.T., Burland, V. Riley, M., Collado-Vides, J., Glasner, J.D., Rode, C.K., Mayhew, G.F., Gregor, J., Davis, N.W., Kirkpatrick, H.A., Goeden, M.A., Rose, D.J., Mau, B. and Shao, Y.
                                                                                                                                                                                    Direct Submission
Submitted (13-OCT-1998) Laboratory of Genetics, University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA
This sequence was determined by the E. coli Genome Project at the University of Wisconsin-Madison (Frederick R, Blattner, director)
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Bacteria; Proteobacteria; Gammaproteobacteria;
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Plunkett, G. III.
                                                                                                                                                                                                                                                                                                                                                   Submitted (02-SEP-1997) Guy Plunkett III, Laboratory of Genetics, University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA. Email: ecoli@genetics.wisc.edu Phone: 608-262-2534 Fax:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (16-JAN-1997) Guy Plunkett III, Laboratory of Genetics University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA. Email: ecoli@genetics.wisc.edu Phone: 608-262-2534 Fax:
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Genome Project's World Wide Web site
Genome Project's World Wide Web site
(http://www.genetics.wisc.edu). *** The E. coli K12 sequence and
its annotations are periodically updated; this is version M54. No
sequence changes. Annotation updates; updated gene identifications
and products; all new functional assignments courtesy of Monica
Riley; added promoters, protein binding sites, and repeated
sequences described in reference 1. The unique numeric identifiers
beginning with a lowercase 'b' assigned to each gene (protein- or
RNA-encoding) are now designated as gene synonyms instead of
labels. This should allow them to be searched for in Entrez as gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mary Berlyn. A public version of the database is accessible (http://cgsc.biology.yale.edu). Annotation of the genome is an ongoing task whose goal is to make the genome sequence more useful by correlating it with other data. Comments to the authors are appreciated. Updated information will be available at the E. coli
                                                                                                                                                                                                                                         /codon_start=1
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/product="putative membrane protein"
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SGMQRKDGNLNLTGQAPYKLKIGAPAAVQIQYQGKPVDLSRFIRTNQVARLTLNAEQS
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DCLRINPGNIGNEERIRMVVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLES
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EFDVJGTVNALEGGREDIITPMDVSIIGCVVNGPGBALVSTLGVTGGNKKSGLYEDGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="synonym: b2516" complement(1231. .2244)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RKDRLDNNDMIDQLEARIRAKASQLDEARRIDVQQVEK"
complement (1231. .2244)
complement (2529. .3683)
                                                                                         complement (1360. .1389)
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                                                                                                                                                                                         complement(1288. .1316)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /function="putative membrane; Not classified"
/note="£337; 100 pct identical to YFGA_ECOLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="orf, hypothetical
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                         note="factor Sigma70;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="synonym: b2515"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'gene="gcpE"
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                                                                                                                                                                                                      /function="putative enzyme; Not classified"
/note="Residues 25 to 792 of 793 are 43.59 pct identical
to residues 3 to 784 of 785 from GenPept 118 :
gi|1787121|gb|AAC73980.1| (AE000191) anaerobic dimethyl
sulfoxide reductase subunit A [Escherichia coli]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (6073. .6510)

/gene="Z3784"
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/note="Residues 4 to 134 of 145 are 61.83 pct identical
/note="Residues 4 to 135 from GenPept 118 :
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sulfoxide reductase subunit B [Escherichia coli]"
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                                                                                                                                                                                                                                                                                                                                                        complement (6699.
/gene="Z3785"
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/gene="Z3784"
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/genee"2783"
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/function="putative enzyme; Not classified"
/note="Residues 2 to 272 of 273 are 25.26 pct identical
/residues 6 to 276 of 286 from GenPept 118:
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sulfoxide reductase subunit C [Yersinia pestis]"
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DTLLDTKLVI LWGHNPTETI FGHTNYYFQKMKQNGTRFI VVDPRYSDTVSSLADQWI P
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                                                                                                                                                                 /codon_start=1
/transl_table=
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LLPTTDNALMDAMMYVIISENLHDKTFIDTYTLGFDENSMPEGVPANESLVAYLFGAK
DGIHKTEBWAEKITHVPAQSIRQLARDYATTKEAALIQGWEPQHHICGERTARGSTLL
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DGLKGVDKLDSNIRLLFSLAGNVLANQNEDVHQAAKLLEDESKLEFIVLSDLFWTPSA
KYADVLLPETSFWERWNIGETWGTASYLILSEKFIEPDFERRTDYDWLRDVAKKLGVE
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QNNPFTYPSGKKIEFSKRELFBWQDPEIPALSHYVPAFEGPEDKLTAKYEPQLTTWKGK
NRANSTQYANPWLQEVQTQKKMLNPQDAKQRGISEGDSVKIYNDRGVSIIPVEITPRI

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US-09-921-992-50 (1-372) x AE005481 (1-11521)
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ArgSerArgGlyIleAsnPheIleAlaCysProThrCysSerArgGlnGluPheAspVal
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                                                                                              AlaAlaAspProValGluGluIleLysValGlyPheAspIleLeuLysSerLeuArgIle
                                                                                                                                                                                      AlaIleGlyLeuGlyLeuLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeu
                                                                                                                                                                                                                                                                    GlnProLeuHisLeuGlyIleThrGluAlaGlyGlyAlaArgSerGlyAlaValLysSer
                                                                                                                                                                                                                                                                                                                                                                     LysAlaSerAspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLysGlnIleAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuGluLysAspLeuGlnGluLysTyrGlyGluProThrProGlnAlaLeuLeuGluSer
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCGTCGATTGTCTGCGTATTAACCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATG
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                                                                                                                                                        GCCATTGGTTTAGGTCTGCTGCTGTCTGAAGGCATCGGCGACACGCTGCGCGTATCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGAAAAAGATCTGCAAGAAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCC
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1 (bases 1 to 11521)
Perna, N.T., Plunkett, G. III, Burland, V., Mau, B., Glasner, J.D., Rose, D.J., Mayhew, G.F., Evans, P.S., Gregor, J., Kirkpattick, H.A., Posfai, G., Hackett, J., Klink, S., Boutin, A., Shao, Y., Miller, L., Grotbeck, E.J., Davis, N.W., Lim, A., Dimalanta, E., Potamousis, K., Apodaca, J., Anantharaman, T.S., Lin, J., Yen, G., Schwartz, D.C., Welch, R.A. and Blattner, F.R.
                                                                                                                                                                                                                                                                                                                                                                                  2 (bases 1 to 11521)
Perna, N.T., Plunkett, G. III, Burland, V., Mau, B., Glasner, J.D., Perna, N.T., Plunkett, G. III, Burland, V., Mau, B., Glasner, J.D., Rose, D.J., Mayhew, G.F., Evans, P.S., Gregor, J., Kirkpatrick, H.A., Posfai, G., Hackett, J., Klink, S., Boutin, A., Shao, Y., Miller, L., Posfai, G., Hackett, J., Klink, S., Boutin, A., Shao, Y., Miller, L., Grotbeck, E.J., Davis, N.W., Lim, A., Dimalanta, E., Potamousis, K., Apodaca, J., Anantharaman, T.S., Lin, J., Yen, G., Schwartz, D.C., Welch, R.A., and Blattner, F.R.
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Escherichia coli 0157:H7 ED1933
Bacteria, Proteobacteria, Gammaproteobacteria;
Enterobacteriaceae; Escherichia.
                                                                                                                                                                                                                                                                                                                      Submitted (22-OCT-2000) Laboratory of Genetics, UW Wisconsin, 445 Henry Mall, Madison, WI 53706, USA
                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genome sequence of enterohaemorrhagic Escherichia coli O157:H7
Nature 409 (6819), 529-533 (2001)
21074935
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Escherichia coli O157:H7 EDL933
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/note="Residues 1 to 372 of 372 a
                                                               complement (86.
                                                                                                                             /note="enterohemorrhagic" complement(86. .1204)
                                                                                     /note="synonym:
                                                                                                     gene="gcpE"
                                                                                                                                                                                                                   'mol_type="genomic DNA"
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                                                                                                                                                                                                                                                                                                     ocation/Qualifiers
                                                                                                                                                                                           serotype="0157:H7"
                                                                                                                                                                                                                                                             organism="Escherichia coli O157:H7 EDL933"
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                                                                                                                                                                       xref="taxon:155864"
                                                                  .1204)
                                                                                     Z3778"
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  are 100.00 pct identical
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section 100
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to residues 1 to 143 of 143 from Escherichia coli K-12
Strain MG1655: B2518"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MSEQLUTPENVTKDGKINLLDLNRQQMREFFKDLGEKPFRADQ
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MSYGFTTIVKKTRGDDIDAACGQLAGDVIDRTKRTLRKRMQGEAIDIKAV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MNTEATHDQNEALTTGARLRNAREQLGLSQQAVAERLCLKVSTV RITE AT 10n="MNTEATHDQNEALTTGARLRNAREQLGLSQQAVAERLCLKVSTV RITE AT 10n="MNTEATHDQNEALT BEELLFOGLEKQAFURAKVAFMQSESL GKRKKRDGAFURTFTULFVVILSVARLYH PEELLFOGLEKQAFURADQNAVSELSSNEG GKRKKRDGNTATTDDATTSTPASVDTTATNTOTPVVTAPAPAVDPQNAVSSESSNEG DGSVPLNTXTTDDATTSTPASVDTTATNTOTPVVTAPAPAVDPQNAVSBSSANV DTAATTPAPTAATTDDAATPTDQAGVTTPVADPNALVMNFTADCWLEVTARTKLF SGMQRKDGNLNLTGQAPYKLKIGAPAAVQIQYQGKPVDLSRFIRTNQVARLTLNAEQS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (3833. .4264)
/gene="ndk"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   residues 1 to 384
MG1655: B2517"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="synonym: Z3780"
complement(2529. .3683)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (2529. .3683)
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complement(1231. .2244)
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/note="Residues 1 to 384 of 384 are 99.47
residues 1 to 384 of 384 from Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="putative membrane
/protein_id="AAG57626.1"
/db_xref="GI:12516910"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MG1655: B2516"
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                                                               db_xref="GI:12516912"
                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="ndk"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="synonym: Z3781"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="yfgB"
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/note="Residues 1 to 337 of 337 are 99.10 pct identical to
residues 1 to 337 of 337 from Escherichia coli K-12 Strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="yfgA"
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                                                                                                                                                                                                                                                                                                                                                                                function="enzyme; Nucleotide biosynthesis: Purine
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                                                                                                                                          kinase'
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E.coli gcpE gene.
X64451 S43432
X64451.1 GI:41540
                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (17-FEB-1992) J. Parker, Southern II Microbiology, S I U, Carbondale II 62901, USA 2 (bases 1 to 1697)
Baker, J., Franklin, D.B. and Parker, J. Sequence and characterization of the gcpE gene FEMS Microbiol. Lett. 94, 175-180 (1992)
See also J01629 & MI1843.
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Escherichia coli
Escherichia coli
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Enterobacteriaceae; Escherichia.
1 (bases 1:to 1697)
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Alignment Sco Pred. No.:	1.58e-135 Length:
Score: Percent Similarit Best Local Simila Query Match:	1866.00 Matches: 37  y: 100.00% Conservative: 0  rity: 100.00% Mismatches: 0  100.00% Indels: 0
US-09-921-992	(1-372) x ECGCPE (1-16
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Db 595	
Qy 41	
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Db . 955	
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Db 1075	
Оу 201	GlnProLeuHisLeuGlyIleThrGluAlaGlyGlyAlaArgSerGlyAlaValLysSer 220
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Qy 221	AlaIleGlyLeuGlyLeuLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeu 240
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Db 1255	GCGGCCGATCCGGTCGAAGAGATCAAAGTCGGTTTCGATATTTTGAAATCGCTGCGTATC 1314

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RESULT 5
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Sequence 3 from I
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                                                                                              Boronat, A., Campos, N., Rodriguez-Concepcion, M., Seeman, M., Valentin, H.E., Venkatesh, T. V. and Ven Methyl-d-erythritol phosphate pathway genes Patent: WO 0212478-A 3 14-FEB-2002; Monsanto Technology LLC (US)
                                                                                                                                                            Escherichia coli
Escherichia coli
Bacteria; Proteobacteria; Gammaproteobacteria;
Enterobacteriaceae; Escherichia.
                                                                                                                                                                                                                    AX393943.1 GI:19701905
                                                                                                                                                                                                                                                                                                          GluAlaArgArgIleAspValGlnGlnValGluLys
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                                                                                                                                                                                                                                                                                              GAAGCGCGTCGAATTGACGTTCAGCAGGTTGAAAAA
                                                                                                                                                                                                                                                                                                                                      AACAACGATATGATCGACCAGCTGGAAGCACGCATTCGTGCGAAAGCCAGTCAGCTGGAC
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RKDRLDNNDMIDQLEARIRAKASQLDEARRIDVQQVEK"
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Gaps:

AlaAlaAspProValGluGluIleLysValGlyPheAspIleLeuLysSerLeuArgIle GlnProLeuHisLeuGlyIleThrGluAlaGlyGlyAlaArgSerGlyAlaValLysSer LeuGluLysAspLeuGlnGluLysTyrGlyGluProThrProGlnAlaLeuLeuGluSer ValValAspCysAlaArgAspLysAsnIleProIleArgIleGlyValAsnAlaGlySer ValGluAlaThrValAsnGlnIleLysAlaLeuGluArgValGlyAlaAspIleValArg MetHisAsnGlnAlaProIleGlnArgArgLysSerThrArgIleTyrValGlyAsnVal AlaIleGlyLeuGlyLeuLeuSerGluGlyIleGlyAspThrLeuArgValSerLeu LysAlaSerAspValPheLeuAlaValGluSerTyrArgLeuLeuAlaLysGlnIleAsp GCCATGCGTCATGTTGATCATCTCGATCGCCTGAACTTCGATCAGTTCAAAGTCAGCGTG AlaMetArgHisValAspHisLeuAspArgLeuAsnPheAspGlnPheLysValSerVal GTGGTTGACTGTGCGCGCGATAAAAACATTCCGATCCGTATTGGCGTTAACGCCGGATCG GlyValAspCysLeuArgIleAsnProGlyAsnIleGlyAsnGluGluArgIleArgMet GTGCCGCTGGTGGCTGACATCCACTTCGACTATCGCATTGCGCTGAAAGTAGCGGAATAC GTATCCGTACCGACGATGGACGCGGCAGAAGCGTTCAAACTCATCAAACAGCAGGTTAAC ValSerValProThrMetAspAlaAlaGluAlaPheLysLeuIleLysGlnGlnValAsn ProIleGlyAspGlyAlaProIleAlaValGlnSerMetThrAsnThrArgThrThrAsp CAGCCGTTGCATCTGGGGATCACCGAAGCCGGTGGTGCGCGCAGCGGGGCAGTAAAATCC AAAGCGTCTGACGTCTTCCTCGCTGTTGAGTCTTATCGTTTGCTGGCAAAACAGATCGAT CTGGAAAAAGATCTGCAAGAAAAGTATGGCGAACCGACGCCGCAGGCGTTGCTGGAATCT GGCGTCGATTGTCTGCGTATTAACCCCTGGCAATATCGGTAATGAAGAGCGTATTCGCATG ValProLeuValAlaAspIleHisPheAspTyrArgIleAlaLeuLysValAlaGluTyr ATGCATAACCAGGCTCCAATTCAACGTAGAAAATCAACACGTATTTACGTTGGGAATGTG cecrececerareecre 180 260 720 240 660 220 600 200 540 480 160 420 140 360 120 300 100 240 80 180 60 40 60 20

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Enterobacteriaceae; Escherichia.
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KSAIGLULLSEGIGDTLRVSLAADPVEBIKVGFDILKSLRIRSGINFIACPTCSRQ
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                                        LygAlaSerAgpValPheLeuAlaValGluSerTyrArgLeuLeuAlaLygGlnIleAgp
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EP 1043403-A 29 11-OCT-2000;
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Location/Qualifiers
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Novel method for identifying antibacterial
Patent: WO 0061793-A 29 19-OCT-2000;
GPC BIOTECH AG (DE) ; LOFERER HANNES (DE)

Location/Qualifiers
                                     GluAlaArgArgIleAspValGlnGlnValGluLys
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
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                                   21
             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (27-APR-2001) Institut fuer Organische
Biochemie, Lehrstuhl III, Technische Universitaet
Lichtenberg Strasse 4, Garching D-85747, Germany
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hecht, S., Eisenreich, W., Adam, P., Amslin Arigoni, D. and Rohdich, F. Studies on the nonmevalonate pathway to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AY033515 1119 bp DNA linear Escherichia coli 1-hydroxy-2-methyl-2-(E)-butenyl synthase (ispG) gene, complete cds.

AY033515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rohdich, F., Hecht, S., Direct Submission
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                         ProIleGlyAspGlyAlaProIleAlaValGlnSerMetThrAsnThrArgThrThrAsp 40
                                                                        MetHisAsnGlnAlaProIleGlnArgArgLysSerThrArgIleTyrValGlyAsnVal
                                                           ATGCATAACCAGGCTCCAATTCAACGTAGAAAATCAACACGTATTTACGTTGGGAATGTG
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                                                                                                                                                                                                                                      272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (IspG) protein
. Natl. Acad. Sci. U.S.A.
                                                                                                                                                                                                                                   /protein_id="AAK53460.1"
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/db_xref="G1:17978528"
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KSARIGLGLLLSEGIGDTLRVSLAADPVEEIKGFDILKSLRIRSRGINFIACFTCSRQ
EFDVICTVNALEGRLEDITTPMDVSIIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGGV
RKDRLDNNDMIDQLEARIRAKASQLDEARRIDVQQVEK"
a 280 c 315 g 252 t
                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
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/product="1-hydroxy-2-methyl-2-(E)-butenyl
synthase"
                                                                                                                                                                                                                                                                                                                                                                                                                            /function="converts 2C-methyl-D-erythritol
2,4-cyclodiphosphate into 1-hydroxy-2-methyl-2-(E)-butenyl
4-diphosphate, last but one step of the
mevalonate-independent pathway for isoprenoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Escherichia
/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:562"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'gene="ispG"
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                                                                           SerIleIleGlyCysValValAsnGlyProGlyGluAlaLeuValSerThrLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                IleGlyThrValAsnAlaLeuGluGlnArgLeuGluAspIleIleThrProMetAspVal
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                      GluAlaArgArgIleAspValGlnGlnValGluLys
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GAAGCGCGTCGAATTGACGTTCAGCAGGTTGAAAAA
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PAT 16-NOV-2000

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Command line parameters:

-MODEL-frame+ p2n.model -DEV=xlh
-Q=/Ggn2_1/USPTO_spool/US09921992/runat_21112003_162546_18406/app_query.fasta_1.519
-DB=GenEmb1 -QFMT=fastap -SUFFIX=p2n.rge -MINMATGH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosun62 -TRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFWT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER=US09921992_0GGN 1 1 3508 @runat_21112003 162546_18406 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEQÜERY -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPDEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
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Maximum Match 100%
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Maximum DB seq length: 200000000
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1: gb_ba:*
2: gb htg:*
3: gb_om:*
4: gb_ow:*
5: gb_ov:*
6: gb_pat:*
7: gb_pt:*
9b_pt:*
1: gb_pt:*
1: gb_sts:*
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Ygapop 10.0 , Y
Fgapop 6.0 , F
Delop 6.0 , I
2888711 seqs, 20454813386 residues
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40: em\_htgo\_mus:\*
41: em\_htgo\_other:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

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ALIGNMENTS

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; LENGTH: 365
; TYPE: PRT
; ORGANISM: Streptomyces avermitilis
US-10-156-761-8947
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Search completed: November 23, 2003, 17:22:06
Job time : 50 secs
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                                                                                                                  351 FGY--GNE 356
                                                                                                                                                                       318 LGVTGGNK 325
                                                                                                                                                                                                                                 297 HGSDIPNHHLCMAISNTTYYESLVTSVNVVRERHVD-----DQGLVHAPA-GPGIALPLD 350
                                                                                                                                                                                                                                                                                                                                                 248 DGAHMNAADFIRAGAATFGVRAGTTLRGGITGAMRTAHLADAFR------LRAEV 296
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               148 LDVAD---QCLALGYRGİ----KLHAWGDARRDAELCLALRDHVĞ---PDVPLMYDGSAG 197
                                                                                                                                                                                                                                                                                               263 RGI---NFIACPTCSRQEF--DVIGTVNALEQRLEDIITPMDVSIIGCVVNGPGEALVST 317
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        151 EPTPQAL-LESAMRHVDHLDRLNFDQFKVSVKASDVFLAVESYRLLAKQIDQPLHLGITE 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95 LKVAEYGVDCLRINPGNIGNEERIRMVVDCARDKNIPIRIGVNAGSLEKDLQEKY----G 150
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         58 -----IVRVSVPTMDAAE------AFKLIKQ-QVNVPLVADIHFDYRIA-- 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28 GSAPVGDGAVLHIGTDEGAEGVSVFARPGAYSTLRDLVDRVFRAELVGADPFQREWLWHR 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18 GNVPIGDGAPIAVQSMTNTRTTDVEA-------TVNQIKALERVGAD------- 57
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RESULT 14
US-09-815-242-12389
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CURRENT APPLICATION NUMBER: US/09/815,24
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; ORGANISM: Staphylococcus aureus
US-09-815-242-5635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
NUMBER OF SEQ ID NOS: 14110
SOFTWARE: FASCSEQ for Windows Version
SEQ ID NO 5635
LENGTH: 2368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 12389, Application US/09815242 Patent No. US20020061569A1
                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
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Best Local
                                                                                                                                                                                      APPLICANT: Carr, Grant J.
APPLICANT: Yamamoto, Robert T.
APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA.011A
                                                                                                                                                                                                                                                                       APPLICANT: Wall, Daniel
APPLICANT: Trawick, John D.
APPLICANT: Carr, Grant J.
APPLICANT: Yamamoto, Robert
APPLICANT: Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5.3%; Score 99; DB 9; Length 2368; Local Similarity 20.8%; Pred. No. 4.1; es 89; Conservative 58; Mismatches 155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1750 EKTEALAMIKQITDQAKQGITDA--TTTAEVEKAKAQGLEAFDNIQIDSTEKQKA---IE 1804
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Zyskind, Judith W.
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PRIOR APPLICATION NUMBER: 60/253,625
PRIOR EILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 14110
SOFTWARE: FASTSEQ for Windows Version
SEQ ID NO 12389
LENGTH: 2368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local (
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1885 EVVNKQIE 1892
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                                        364 RIDVQQVE 371
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                                                                                                                                                                                                                                                                                                                                                  ESINNGVDNGDVDDALTQGKAAIDAIQVDATVKPKANQVIDAKAEETKESIDQSDQLTAE 1749
                                                                                      TN----AEIATV----
                                                                                                                             VNGPGEALVSTLGVTGGNKKSGLYEDGVRKDRLDNNDMIDQLEA-RIR--AKASQLDEAR 363
                                                                                                                                                                          ELETALDQIEA-----GVNVDADATTEEKE-----AFTNALEDILSKATEDISDQT 1850
                                                                                                                                                                                                                                                                                                                                                                                             EIKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDVSIIGCV 306
                                                                                                                                                                                                                                                              EKTEALAMIKQITDQAKQGITDA--TTTAEVEKAKAQGLEAFDNIQIDSTEKQKA---IE 1804
                                                                                                                                                                                                                                                                                                     ESYRLLA--KQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIG-DTLRVSLAADPVE 246
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20.8%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       58;
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                                                                                      KNSALEQLKAQRINPVVKKNALEAIR 1884
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    158
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RESULT 15
US-10-156-761-8947
| Sequence 8947, Application US/10156761
| Publication No. US20030119018A1
| GENERAL INFORMATION:
| APPLICANT: OMURA, SATOSHI
| APPLICANT: IKEDA, HARUO
| APPLICANT: ISHIKAWA, HIROSHI
| APPLICANT: SHIBA, TADAYOSHI
| APPLICANT: SHIBA, TADAYOSHI
| APPLICANT: HATTORI, WASHIRA
| TITLE OF INVENTION: WOVEL POLYNUCLEOTIDES
| FILE REFERENCE: 249-262
| CURRENT APPLICATION NUMBER: US/10/156,761
| CURRENT APPLICATION NUMBER: JP 2001-204089
| PRIOR FILING DATE: 2001-05-29
| PRIOR APPLICATION NUMBER: JP 2001-272697
| PRIOR APPLICATION NUMBER: JP 2001-272697
| PRIOR APPLICATION NUMBER: JP 2001-272697
| PRIOR FILING DATE: 2001-08-02
| NUMBER OF SEQ ID NOS: 15109

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RESULT 12
US-10-306-905-15
; Sequence 15, Application US/10306905
; Publication No. US20030167513A1
; GENERAL INFORMATION:
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US-10-306-905-11
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Publication No. US20030167513A1
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Best Local Similarity
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               APPLICANT: MOURAD, GEORGE S.
APPLICANT: JUNK, DAMIAN J.
TITLE OF INVENTION: SELECTION AND USE OF ISOPROPYLMALATE SYNTHASE (IPMS)
TITLE OF INVENTION: MUTANTS DESENSITIZED IN L-LEUCINE NEGATIVE FEEDBACK
TITLE OF INVENTION: CONTROL
FILE REFERENCE: 3220/93981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR FILING DATE: 2001-11-30
NUMBER OF SEQ ID NOS: 45
SOFTWARE: PatentIn Ver. 2.1
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CURRENT FILING DATE: 2002-11-27
PRIOR APPLICATION NUMBER: 60/339,895
PRIOR FILING DATE: 2001-11-30
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APPLICANT: JUNK, DANIAN J.
TITLE OF INVENTION: SELECTION AND USE OF ISOPROPYLMALATE SYNTHASE (IPMS)
TITLE OF INVENTION: MUTANTS DESENSITIZED IN L-LEUCINE NEGATIVE FEEDBACK
TITLE OF INVENTION: CONTROL
FILE REFERENCE: 3220/93981
CURRENT APPLICATION NUMBER: US/10/306,905
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VGYTMPFEFAGIISGLYERVP----NIDKAIISVHTHDDLGLAVGN-SLAA-----VH
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                                                                                                                                                                                                                                                                                                       AHSSGIHODGVLKNRENYEIMTPESIGLNOIQLNLTSRSGRAAVKHRMD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGARQVEGAMN-----GIGERAGNCSLEEVIMAIKVRKDIL-----
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Pred. No. 0.24;
52; Mismatches 142;
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                                                                                                                                                                 APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essent
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR APPLICATION NUMBER: 60/206,848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT FILING DATE: 2002-11-27
PRIOR APPLICATION NUMBER: 60/339,895
PRIOR FILING DATE: 2001-11-30
NUMBER OF SEQ ID NOS: 45
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 5635, Application US/09815242 Patent No. US20020061569A1
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                                                                               PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/242,578
                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari L.
APPLICANT: Zyskind, Judith W.
                                                                                                                                                 PRIOR FILING DATE: 2000-05-23
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                    APPLICATION NUMBER: 60/253,625 FILING DATE: 2000-11-27
                                                             FILING DATE: 2000-10-23
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                                                                                                                                                                                                                                                                                                                                                                                                                                 Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                    Carr, Grant
                                                                                                                                                                                                                                                                                                                                                                      Yamamoto, Robert T.
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20.0%; Pred. No. 0.39;
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MOLECULE TYPE: protein
US-09-159-469-50
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US-09-159-469-50
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Best Local (
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Patent No. US20020064535A1
GENERAL INFORMATION:
APPLICANT: Reed, Steven G.
                                                                                                                                                                                                                                                                                                                           Matches
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 578 amino acic
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APPLICATION NUMBER: 09/106,58
FILING DATE: 29-JUN-1998
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 2101
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPUTER: COMPUTER: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Houghton, Raymond
TITLE OF INVENTION: COMPOUNDS AND METHODS FOR THE DIAGNOSIS
TITLE OF INVENTION: THERAPY OF EHRLICHIA INFECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES:
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STATE: Washington
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140 SLEKDLQEKY-GEPTPQALLE--SAMRHVDHLDRLNFDQFKVSV------
                                                               232 VVAPEAQQLESAPEVSAPAQPESTVLGVAEGDLKSEVSVEANADVAQKE-----VISG
                                                                                                                                                 172 APATEEVETEEQEVILEEGTLIDLEQPVAQVPVVAEAELPGVEÄÄEÄIVPSLEENKLQEV 231
                                                                                                                                                                                                                                     112 VQEEEGTGMYLINAPEKAVVRFFKIEKSAAEEPQTVDPSVVESATGSGVDTQEEQEIDQE
                                                                                                                                                                                             48 IKALERVGAD-----
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                                                                                                                                                                                                                                                                                                                       h 5.7%; Score 105.5; DB 9; Similarity 19.5%; Pred. No. 0.095; 91; Conservative 77; Mismatches 176;
                                                                                                       LVADIHFDYRIALKV---AEYGVDCLRINPGNIGNEERIRMVVDCARDKNIPIRIGVNAG
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US-09-798-042-50
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US-09-798-042-50
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Best Local S
Matches 91
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CURRENT FILING DATE: 2001-03-02
NUMBER OF SEQ ID NOS: 108
SOFTWARE: FASTSEQ for Windows Version 3.0
SEQ ID NO 50
LENGTH: 578
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Patent No. US20020068343A1
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APPLICANT: Lodes, Michael J.
APPLICANT: Houghton, Raymond L.
APPLICANT: MCNeill, Patricia D.
TITLE OF INVENTION: COMPOUNDS AND METHODS FOR THE DIAGNOSIS
TITLE OF INVENTION: AND TREATMENT OF EHRLICHIA INFECTION
FILE REFERENCE: 210121.43967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
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Local Similarity 19.5%; Po
les 91; Conservative 77;
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                                                                                                                                                                                                                                                                                                                    SLEKDLQEKY-GEPTPQALLE--SAMRHVDHLDRLNFDQFKVSV--------
                                                                                                                                                                                                                                                                                                                                                                 VVAPEAQQLESAPEVSAPAQPESTVLGVAEGDLKSEVSVEANADVAQKE-----VISG 284
                                                                                                                                                                                                                                                                                                                                                                                                        LVADIHFDYRIALKY---AEYGVDCLRINPGNIGNEERIRMVVDCARDKNIPIRIGVNAG 139
                   ELPGVEAAEAIVPSLEENKLQEVVVAPEAQQLESAPEVSAPVQPESTVLGVTEGDLKSEV
                                                                                                                                                 GLLLSEGIGDTLRVSLAADPVEEIKVGFD------ILKSLRIRSRGINFIACPTCSRQ 276
                                                                                                                                                                                                                                                                               QQEQEIAEALEGTEAPVEVKEETEVLLKEDTLIDLEQPVAQVPVVAEAELPGVEAAEAIV 344
                                                             EFDVIGTVNAL-----EQRLEDIITPMDVSIIGCV--VNGPGEALVSTLGVTGGNKKSGL 329
                                                                                                       GMQQEAGISD--QETQATEEVEKVEVSVETKTEEPEVILEEGTLIDLEQPVAQVPVVAEA
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Pred. No. 0.095;
7; Mismatches 176;
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US-10-306-905-14
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                                                                                                                                                                                             Matches
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Best Local !
                                                                                                                                                                                                                                                                                                                       SEQ ID NO 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                      FILE REFERENCE: 3220/33981

CURRENT APPLICATION NUMBER: US/10/306,905

CURRENT FILING DATE: 2002-11-27

PRIOR APPLICATION NUMBER: 60/339,895

PRIOR FILING DATE: 2001-11-30

NUMBER OF SEQ ID NOS: 45

SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: SELECTION AND USE OF ISOPROPYLMALATE SYNTHASE (IPMS)
TITLE OF INVENTION: MUTANTS DESENSITIZED IN L-LEUCINE NEGATIVE FEEDBACK
TITLE OF INVENTION: CONTROL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: MOURAD, GEORGE S
APPLICANT: JUNK, DAMIAN J.
                                                                                                                                                                                                                                                                                                         ENGTH: 533
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                                                                                                                                                                                                            Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     258 LRIRSRGIN-FIACPTCSRQEFDVIGTVNA-LEQRLEDIITPMDVSIIGCVVNGPGEALV 315
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121 TROEVLEIVPEMVAYAKSFLNDVEFSPEDAGRSDPEFLYQVLERA-----
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                                                            61 VQKIAGSVGSEADSPIICGLARATQKDIKSAADALRPAAKPRIHTFLATSDIHLQYKLKK 120
                                                                                                                                                           14 RIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVP------
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23.4%; Pred. No. 0.00066;
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: PRT
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; ORGANISM: Streptomyces avermitilis US-10-156-761-10088
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PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 10088
LENGTH: 1046
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
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                                                                                                                                                                                                                                                     130 IPIRIGVNAGSL-----EKDLOEKYGEPTPOALLESAMRHVDHLDRLNFDQFKV-
                                                                                                                                                                                                                                                                                                        663 ---KVRGQLTEFGLVAE---
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                                                                                                                                                    ----SVKASDVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLLSEGIGD
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HORIKAWA, HIROSHI
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VDEDRTARQIAEKRAARERNANFARRGVRFSLENLDEALKAGLVQELNLI
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Sequence 256, Application US/09712363

Patent No. US20020164588A1

GENERAL INFORMATION:
APPLICANT: Elsenberg, David
APPLICANT: Rotstein, Sergio H.
APPLICANT: Rotstein, Sergio H.
APPLICANT: ROTSTEAM NUMER THE FUNCTIONS AND
TITLE OF INVENTION: INTERACTIONS OF PROTEINS BY COMPARATIVE ANALYSIS
FILE REFERENCE: 07419-032001
CURRENT APPLICATION NUMBER: US/09/712,363
CURRENT FILING DATE: 2000-11-13
PRIOR APPLICATION NUMBER: 60/119,531
PRIOR APPLICATION NUMBER: 60/119,531
PRIOR APPLICATION NUMBER: 60/119,644
PRIOR FILING DATE: 2000-02-01
PRIOR APPLICATION NUMBER: 60/119,844
PRIOR FILING DATE: 1999-01-29
PRIOR APPLICATION NUMBER: 60/119,844
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Best Local Similarity 44.3%;
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CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
PRIOR FILING DATE: 2000-04-07
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PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: Patentin ver. 3.0
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NUMBER: 60/118,206,
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US-10-306-905-16 ; Sequence 16, Application US/10306905 ; Publication No. US20030167513A1
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                                                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: MOURAD, GEORGE S.
APPLICANT: JUNK, DAMIAN J.
APPLICANT: JUNK, DAMIAN J.
TITLE OF INVENTION: SELECTION AND USE OF ISOPROPYLMALATE SYNTHASE (IPMS)
TITLE OF INVENTION: MUTANTS DESENSITIZED IN L-LEUCINE NEGATIVE FEEDBACK
TITLE OF INVENTION: CONTROL
FILE REFERENCE: 3220/93981
                                                                  NUMBER OF SEQ ID NOS: 45
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 16
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PRIOR FILING DATE: 1999-11-12
NUMBER OF SEQ ID NOS: 292
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 256
LENGTH: 387
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Best Local Similarity 42.7
Matches 156; Conservative
                                                                                                       CURRENT APPLICATION NUMBER: US/10/306,905
CURRENT FILING DATE: 2002-11-27
PRIOR APPLICATION NUMBER: 60/339,895
PRIOR FILING DATE: 2001-11-30
NUMBER OF SEQ ID NOS: 45
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PRIOR APPLICATION NUMBER: 60/134,092
PRIOR FILING DATE: 1999-05-14
PRIOR APPLICATION NUMBER: 60/165,124
PRIOR FILING DATE: 1999-11-12
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PRIOR FILING DATE: 1999-03-26
PRIOR APPLICATION NUMBER: 60/134,093
TYPE: PRT ORGANISM: Synechococcus PCC6803
                                              LENGTH: 533
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             138 AGIPIRIGVNAGSLDKRFMEKYGKATPEALVESALWEASLFEEHGFGDIKISVKHNDPVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           128 KNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSVKASDVFL 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     78
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9 RRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVPTMDA 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QQVEK 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NGPGEALVSTLGVTGGNKKSGLYEDGVRKDRLDNNDMIDQLEARIRAKASQLDEARRIDV 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VKVGNQVLESLNLRPRSLEIVSCPSCGRAQVDVYTLANEVTAGLDGLDVPLRVAVMGCVV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RRATROLMVGNVGVGSDHPVSVQSMCTTKTHDVNSTLQQIAELTAAGCDIVRVACPRQED
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Pred. No. 2.6e-68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches 134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 10;
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TITLE OF INVENTION: Encoding No. US20020115078Alel Helicobacter Polypeptides in
TITLE OF INVENTION: Genome
FILE REFERENCE: 06132/041002
CURRENT FILING INTENTION NUMBER: US/09/881,752A
CURRENT FILING DATE: 2001-06-15
PRIOR APPLICATION NUMBER: US/08/833,457
PRIOR APPLICATION NUMBER: US/08/833,457
PRIOR FILING DATE: 1997-04-01
NUMBER OF SEQ ID NOS: 370
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Patent No. US2002011
GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Kleanthous, Harold APPLICANT: Al-Garawi, Amal APPLICANT: Miller, Charles APPLICANT: Tomb, Jean-Francoi APPLICANT: Oomen, Raymond P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 359
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Helicobacter pylori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 / Match 42.6%; Score 794; DB 10; Length 359; Local Similarity 45.8%; Pred. No. 1e-72; nes 162; Conservative 73; Mismatches 117; Indels
  309
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                                                                                                                                                                                                                                   124 NIPIRIGVNAGSLEKQFDQKYG-PTPKGMVESALYNAKLLEDLDFTNFKISLKASDVIRT
                                                                                                                                                                                                                                                                                                                       65 ALALKELKKVSPLPLIADIHFHYKFAL-IAAQSVDAIRINPGNIGSKEKIKAVVDACKEK
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GPGEALVSTLGVTGGNKKSGLYEDGVRKDRLDNNDMIDQLEARIRAKASQLDEA 362
                                                                                                                                           IEAYRMLRPLVIYPFHLGVTEAGNLFSSSIKSAMALGGLLMEGIGDTMRVSITGELENEI
                                                                                                                                                                    VESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLLSEGIGDTLRVSLAADPVEEI
                                                                                                                                                                                                                                                                                NIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSVKASDVFLA 188
                                                                                                                                                                                                                                                                                                                                                           AEAFKLIKQQVNVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGNEERIRMVVDCARDK 128
                                                                                                                                                                                                                                                                                                                                                                                                                      VQQVE 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VNGPGEALVSTLGVTGGNKKSGLYEDGVRKDRLDNNDMIDQLEARIRAKASQLDEARRID 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EIKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDVSIIGCV
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                                              KVARAILRHSGRLKEGINWISCPTCGRIEANLVDMAIKVEKRLSHIKTPLDISVMGCVVN
                                                                                        KVGFDILKSLRIRSRGINFIACETCSROEFDVIGTVNALEQRLEDIITEMDVSIIGCVVN
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Tomb, Jean-François
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; LENGTH; 385
; TYPE: PRT
; ORGANISM: Streptomyces avermitilis
US-10-156-761-9186
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                                                                                                                                                               US-09-738-626-5705
                                                                                     Sequence 5705, Application US/09738626
Publication No. US20020197605A1
GENERAL INFORMATION:
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Best Local Similarity
Matches 164; Conserv
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GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
                                         APPLICANT: NAKAGAWA, SATOSHI APPLICANT: MIZOGUCHI, HIROS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT FILING DATE: 2002-05-29
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APPLICANT: IKEDA,
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                               304 GCVVNGPGEALVSTLGVTGGNKKSGLYEDGVRKDRLDNNDMIDQLEARIRAKASQLDEAR 363
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        184 DVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSLAAD
                                                                                                                                                                                                                                                            365 KI-AEQMEQ 372
                                                                                                                                                                                                                                                                                                      364 RIDVQQVEK 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           244 PVEEIKVGFDILKSLRIRSRGINFIACPTCSROEFDVIGTVNALEQRLEDIITPMDVSII 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            195 DPVVMVNAYRQLAAQCDYPLHLGVTEAGPAFQGTIKSAVAFGALLSEGIGDTIRVSLSAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         135 AAKEHGTPIRIGVNAGSLORRLLEKYGKATPEALVESALWEASLFEEHDFRDIKISVKHN 194
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               65 TMDAAEAFKLIKQQVNVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGN-EERIRMVVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      75 TQDDADALAVIARKSQIPVVADIHFQPKYVFAAIEAGCAAVRVNPGNIKQFDDKVKEIAR 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15 PIAERRVSRQIQVGPLAVGGTAPVSVQSMTTTRTSDIGATLQQIAELTASGCQIVRVACP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6 PI-QRRKSTRIYVGNVÞIGDGAPIAVQSMTNTRTTDVBATVNQIKALERVGADIVRVSVÞ
                                                                                                                                                                                                                                                                                                                                                    GCVVNGPGEAREADLGVASGNGKGQIFVKGEVIKTVPESKIVETL
                                                                                                                                                                                                                                                                                                                                                                                                                                                 PVEEIKVGIQILESLGLRQRRLEIVSCPSCGRAQVDVYKLAEEVTAGLEGMEVPLRVAVM
                        MIZOGUCHI, I
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HORIKAWA, HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42.1%; Score 786.5; DB 15; ilarity 44.4%; Pred. No. 6.6e-72; Conservative 71; Mismatches 121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SATOSHI
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Length 385

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Minimum
Maximum
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Maximum Match 100%
Listing first 45 summaries
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
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DB seq length: 2000000000
                                                                                                                    786.5
761
751.5
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110.5
108.5
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1: /cgn2_6/ptodata/1/pubpaa/US07 PUBCOMB.pep:*

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9: /cgn2_6/ptodata/1/pubpaa/US09 PUBCOMB.pep:*

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11: /cgn2_6/ptodata/1/pubpaa/US09 PUBCOMB.pep:*

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16: /cgn2_6/ptodata/1/pubpaa/US10 PUBCOMB.pep:*

16: /cgn2_6/ptodata/1/pubpaa/US10 NEW PUB.pep:*

17: /cgn2_6/ptodata/1/pubpaa/US10 NEW PUB.pep:*

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18: /cgn2_6/ptodata/1/pubpaa/US10 NEW PUB.pep:*

19: /cgn2_6/ptodata/1/pubpaa/US10 NEW PUB.pep:*
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1866
1 MHNQAPIQRRKSTRT
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                  666188 seqs, 182559486 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gapop 10.0 , Gapext 0.5
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                                    .5 US-10-156-761-10098

.0 US-09-881-752A-196

(5 US-10-156-761-9186

(6 US-09-738-626-5705)

(10 US-09-738-626-5705)

(10 US-09-712-363-256)

(10 US-10-306-905-16

(12 US-10-306-905-14

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(15 US-09-798-042-50)

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Sequence 10098, A
Sequence 196, App
Sequence 5705, Ap
Sequence 256, App
Sequence 16, Appl
Sequence 11, Appl
Sequence 50, Appl
Sequence 50, Appl
Sequence 11, Appl
Sequence 11, Appl
Sequence 15, Appl
Sequence 15, Appl
Sequence 1535, Appl
Sequence 13389, A
Sequence 8947, Ap
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90	90	90.5	90.5	90.5	90.5	90.5	90.5	91	91	91	91.5	91.5	91.5	91.5	91.5	92	92	92	92.5	93	93	93	93	93	94.5	94.5	94.5	96	96
4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.9	4.9					4.9			4.9	4.9	5.0	5.0	5.0	5.0	5.0	5.0	5.1	5.1	5.1	5.1	5.1
358	293	842	584	502	477	455	455	1798	855	652	756	589	342	332	297	1798	498	291	307	2478	2478	1004	459	368	483	295	290	504	504
9	10	9	15	15	9	9	ø	10	15	15	10	12	12	9	9	10	10	9	15	9	9	10	ø	12	12	9	9	15	9
US-09-784-508-4	US-09-971-536-71	US-09-815-242-11950	US-10-156-761-13475	US-10-156-761-12534	US-09-815-242-11826	US-09-815-242-12128	US-09-815-242-5420	US-09-938-275-9	5 US-10-156-761-14612	US-10-102-806-667	US-09-738-626-6091	US-10-306-905-5	US-10-166-225A-63	US-09-815-242-13072	US-09-815-242-13258	US-09-845-583-8	US-09-738-626-5600	US-09-815-242-11266	US-10-128-714-4018	US-09-815-242-12967	US-09-815-242-5816	US-09-738-626-5676	US-09-815-242-12703	US-10-166-225A-62	US-10-301-997-51	US-09-815-242-12428	US-09-815-242-5590	US-10-260-877-70	US-09-815-242-10969
Sequence 4, Appli	Sequence 71, Appl	Sequence 11950, A	Sequence 13475, A	Sequence 12534, A	11826,	Sequence 12128, A	Sequence 5420, Ap	Sequence 9, Appli	Sequence 14612, A	Sequence 667, App	Sequence 6091, Ap	Sequence 5, Appli	Sequence 63, Appl		Sequence 13258, A	Sequence 8, Appli	Sequence 5600, Ap	Sequence 11266, A	Sequence 4018, Ap	Sequence 12967, A	Sequence 5816, Ap	Sequence 5676, Ap	Sequence 12703, A	Sequence 62, Appl	Sequence 51, Appl	Sequence 12428, A	Sequence 5590, Ap	e 70,	Sequence 10969, A

## ALIGNMENTS

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; PRIOR FILING DATE: 2001-08-02
; NUMBER OF SEQ ID NOS: 15109
; SEQ ID NO 10098
; LENGTH: 385
; TYPE: PRT
; ORGANISM: Streptomyces avermitilis
US-10-156-761-10098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 1
US-10-156-761-10098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 2249-262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 10098, Application US/10156761 Publication No. US20030119018A1 GENERAL INFORMATION:
                                                                                                                                                                                             Matches 164;
                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILLING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: UP 2001-204089
PRIOR FILING DATE: 2001-05-30
77 DADALAVIARKSQIPVIADIHFQPKYVFAAIEAGCAAVRVNPGNIKQFDDKVKEIAKAAK 136
                                             68 AAEAFKLIKQQVNVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGN-EERIRMVVDCAR 126
                                                                                                                           8 QRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVPTMD
                                                                                             ERRKSRQIQVGTVAVGGDAPVSVQSMTTTRTSDIGATLQQIAELTASGCQIVRVACPTQD
                                                                                                                                                                                               Conservative
                                                                                                                                                                                       43.3%; Score 808; DB 15;
44.9%; Pred. No. 4.1e-74;
vative 70; Mismatches 119;
                                                                                                                                                                                                                                          Length 385;
                                                                                                                                                                                             Indels 12;
                                                                                                                                                                                             Gaps
                                                                                               76
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CURRENT APPLICATION NUMBER: US/09/612,964
; CURRENT FILING DATE: 2000-07-10
; PRIOR APPLICATION NUMBER: RU 99114325
; PRIOR FILING DATE: 1999-07-09
; NUMBER OF SEQ ID NOS: 12
; SEQ ID NO 2
; LENGTH: 523
; TYPE: PRT
; ORGANISM: Escherichia coli
US-09-612-964-2
Search completed: November 23, 2003, 17:17:39
Job time : 23 secs
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Ivanovskaya Lirina APPLICANT: Voroshilova Elvira TITLE OF INVENTION: DA CODING TITLE OF INVENTION: L-LEUCINETITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TILE REFERENCE:
                                                                                                             294 AHSSGIHQDGVLKNRENYEIMTPESIGLNQIQLNLTSRSGRAAVKHRMD 342
                                                                                                                                                                       324 NKKSGLYEDGVRKDRLDNNDM-----IDQLEARIRAKASQLDEARRID 366
                                                                                                                                                                                                                              256 -----ICNMPIPANKAIVGSGAF 293
                                                                                                                                                                                                                                                                                    265 INFIACPTCSRQEFDVIGTVŅALE-QRLEDIITPMDVSIIGCVVŅGPGEALVSTLGVTGG 323
                                                                                                                                                                                                                                                                                                                                                 220 AGARQVEGAMN------GİĞERAGNCSLEEVIMAIKVRKDİL------
                                                                                                                                                                                                                                                                                                                                                                                                  205 LGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSLAADPVEEIKVGFDILKSLRIRSRG 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  172 VGYTMPFEFAGIISGLYERVP----NIDKAIISVHTHDDLGLAVGN-SLAA-----VH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      149 YGEPTP---QALLESAMRHVDHLDRLNFDQFKVSVKA-SDVFLAVESYRLLAKQIDQPLH 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        112 RSTLDEVIERAIYMVKRÄRNYTDDVEFSCEDAGRTPIADLARVVEAAINÄGATTINIPDT 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2, Application US/09612964
5. 6403342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56 ESVQTIARQVKNSRVCALARCVEKDIDVAAESLKVAE----AFRIHTFIATSPMHIATKL 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70 EAFKLIKQQVN----VPLVADIHFDYRIA---LKVABYGVDCLRI-----NPGNIGNE- 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12 STRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVPTMDAA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 SQQVIIFDTTLRDGEQALQASLS-----VKEKLQIALALERMGVDVMEVGFPVSSPGDF 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gusyatiner Mikhail Markovich
Lunts Maria Grigorievna
Kozlov Yury Ivanovich
Ivanovskaya Lirina Valerievna
Voroshilova Elvira Borisovna
Voroshilova Elvira Borisovna
Toroshilova Elvira Motant ISOPROPYLMALATE SYNTHASE,
VENTION: L-LEUCINE-PRODUCING MICROORGANISM AND METHOD FOR PRODUCING
VENTION: L-LEUCINE-PRODUCING MICROORGANISM AND METHOD FOR PRODUCING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               193845US0
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                  219
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Query Match
Best Local Similarity
Watches 91; Conserve
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US-09-106-582-50
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                                                                                                                                                                                                                                                                                                   ; MOLECULE TYPE: protein US-09-106-582-50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION US/09/106,582

FILING DATE: 29-JUN-1998

CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Patent No. 6306402
Patent No. 6306402
CENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 2101
TELECOMMUNICATION INFORMATION:
TELECHONE: 206-622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Reed, Steven G.
APPLICANT: Lodes, Michael J.
APPLICANT: Houghton, Raymond
TITLE OF INVENTION: COMPOUNDS AND METHODS
NUMBER OF SEQUENCES: 73
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET: 6300 Colur
CITY: Seattle
STATE: Washington
                                                                                                                                                                                                                                                                                                                             STRANDEDNESS:
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                      LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
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 181
                          285 QQEQEIAEALEGTEAPVEVKEETEVLLKEDTLIDLEQPVAQVPVVAEAELPGVEAAEAIV
                                                                                                                                     172 APAIEEVETEEQEVILEEGTLIDLEQPVAQVPVVAEAELPGVEÄÄEÄIVPSLEENKLQEV 231
                                                                                                                                                                                          112 VQEEEGTGMYLINAPEKAVVRFFKIEKSAAEEPQTVDPSVVESATGSGVDTQEEQEIDQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            517 SVEADAGMQQEAGISDQETQATEEVEKVEVSVEADAGMQQEL--VDV 561
                                                                                                        83 LVADIHFDYRIALKV---AEYGVDCLRINPGNIGNEERIRMVVDCARDKNIPIRIGVNAG
                                                                                                                                                                  48 IKALERVGAD-----
                                                                                                                                                                                                                   7 IQRRKSTRIYVGNVP-----IGDGA-----PIAVQSMTNTRT-TDVEATVNQ-
                                                                                                                                                                                                                                                                                                                                                         amino acid
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                                                     SLEKDLQEKY-GEPTPQALLE--SAMRHVDHLDRLNFDQFKVSV-----
                                                                                VVAPEAQQLESAPEVSAPAQPESTVLGVAEGDLKSEVSVEANADVAQKE-----VISG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----YEDGVRKDRLDNNDMIDQLEARIRAKASQLDEARRIDV 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EFDVIGTVNAL----EQRLEDIITPMDVSIIGCV--VNGPGEALVSTLGVTGGNKKSGL
-----KASDVFLAVESYRL-LAKQIDQPLH-----LGITEAGGARSGAVKSAIGL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application US/09106582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E: SEED and BERRY LLP
6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                    578 amino acids
                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                               206-682-6031
                                                                                                                                                                                                                                              5.7%; Score 105.5; DB 4;
19.5%; Pred. No. 0.018;
ative 77; Mismatches 176;
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                                                                                                                                                                                                                                                                         Length 578;
                                                                                                                                                                                                                                               Indels 123;
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RESULT 15
US-09-612-964-2
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US-09-252-991A-29387
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Best Local Similarity
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PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 29387
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GENERAL INFORMATION:
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TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
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377
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                                                                                                                               ---DIVLLEQEDFLGTMLGGFGEAHHVEQL
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                                                                Query Match
Best Local Similarity
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GENERAL INFORMATION:
                                                  Matches
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INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                      SEQUENCE DESCRIPTION: SEQ ID NO: 6:
                                                                                                                                                                              ANTI-SENSE: NO
                                                                                                                                                                                              TOPOLOGY: linear MOLECULE TYPE: DNA (go HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER: 39,850
REFERENCE/DOCKET NUMBER: 10
TELECOMMUNICATION IMPORMATION:
TELEPHONE: (617) 526-6000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/09/066,046A
FILING DATE: 24-Apr-1998
CLASSIFICATION: «Unknown»
ATTORNEY/AGENT INFORMATION:
NAME: Superko, Colleen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin Release #1.0, Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BELTZ, Gerald A.
COUGHLIN, Richard T.
TITLE OF INVENTION: CHARACTERIZATION OF GRANULOCYTIC
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STOREY, James
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                                                88;
  7 IQRRKSTRIYVGNVP------IGDGA-----PIAVQSMTNTRT-TDVEATVNQ- 47
                                                                                                                                                                                                                                                         LENGTH: 578 amino acids
TYPE: amino acid
TYPE: amino acid
TYPE: single
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                                         Score 111.5; DB 3;
Pred. No. 0.0039;
7; Mismatches 172;
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                                            Indels 137;
                                                                                   Length 578;
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PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 30838
LENGTH: 980
TYPE: PRT
ORGANISM: Pseudomonas aeruginosa
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Patent No. 6551795
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE REFERENCE:
                                                                                                                                                                                                                                                                                                                                                               Match 5.7%;
Local Similarity 20.7%;
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                                         175
                                                                                                                                                                   488 --QVGIAVVGVVEFVEGRRLECRAVVDGEAQRVAQ-----RVAPGGAAGVVHAELLVVV 539
                                                                                                                                                                                                                                                         434 FVDVVRLPPGAPRSRTRIVADQVVDVGT----EGIHRPVPPAMRTAQPDLQAARSLGV-
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                                                                                                                                                                                                             76 KQQVNVPLVADIHF-----DYRI-----ALKVAEYGVDCLRINPGNIGNEERIRMVVDC 124
                                                                                                                                                                                                                                                                                               16 YVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVPTMDAAEAFKLI 75
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                                                                                                                                                                                                                                                                                                                                             88; Conservative
                                     QFKVSVKASDVFLAVESYRLLAKQIDQPLHLGI-----
QGQVVLPGQAVATGIEA-----RVETAILIGIGLVLAAPGLEGHQPGIERSEAGTA-AD
                                                                                                                           ARDKNIPIRIGVNAGSLEKDLQEKYGEPT---PQALLES-----AMRHVDHLDRLNFD 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GDLKSEVSVEADAGMQQEAGISDQETQATEEVEKVEVSVEADAGMQQEL--VDV 561
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                                                                                   -LATVLAEVLGEPAFVQPRVDAEGFAAADLVLLPVVAEGQYMAFG 591
                                                                                                                                                                                                                                                                                                                                         ; Score 106.5; DB 4;
; Pred. No. 0.033;
65; Mismatches 159;
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US-09-328-352-7906
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US-09-198-452A-389
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Best Local S
Matches 231
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APPLICANT: Gary L. BECTON et al.
APPLICANT: Gary L. BECTON et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO ACINETOBACTER
TITLE OF INVENTION: BAUMANNII FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: GTC99-03PA
FILE REFERENCE: GTC99-03PA
FILE REFERENCE: GTC99-03PA
FILE REFERENCE: GTC99-03PA
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SEQ ID NO 7906
LENGTH: 378
TYPE: PRT
                                                                        Patent No. 6559294
GENERAL INFORMATION:
                                                                                              Sequence 389, Application US/09198452A Patent No. 6559294
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APPLICANT: Griffais, R.
TITLE OF INVENTION: Chlamydia pneumoniae genomic sequence and polypeptides, frantitle OF INVENTION: thereof and uses thereof, in particular for the diagnosis, TITLE OF INVENTION: and treatment of infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/328,352
CURRENT FILING DATE: 1999-06-04
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wes 231; Conserv
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; FILE REFERENCE: 9710-003-999; CURRENT APPLICATION NUMBER: US/09/CURRENT FILING DATE: 1998-11-24; NUMBER OF SEQ ID NOS: 6849; SEQ ID NO 389; LENCTH: 621; TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; TYPE: PRT
; ORGANISM: Chlamydia
US-09-198-452A-389
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US-09-252-991A-29105
                                                                                                                                                                                                                                                                                                                    US-09-252-991A-29105
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PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 29105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: Marc J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 29105, Application US/09252991A Patent No. 6551795
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Best Local Similarity
Matches 111; Conserv
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACII
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS
                                                                                                                                                                                                                                                                                                                                       ORGANISM: Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                         TYPE: PRT
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YSADLMAVEPGNEPCFNIRISACGDDGEESSKRLKHCPFLFRCGQTRMLSQAMEADIVV-
                                                                          LVEVENTVRIIKQSAAAVGKELKVAPLHSASRIYERAEMQFEQGKTDHPYDYACLLDV--
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NUCLEIC ACID AND AMINO ACID SEQUENCES
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Pred. No. 2.
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; MOLECULE TYPE:
US-09-170-187-5
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US-09-170-187-5
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Patent No. 6383745

GENERAL INFORMATION:
APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
NUMBER OF SEQUENCES: 13
Query Match
Best Local Similarity
                                                                                                            TELEFAX: (415) 397-8338
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 365 amino acids
                                                                                                                                                                           REFERENCE/DOCKET NUMBER: CASE-02443
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 705-8410
                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
NAME: Carroll, Peter G.
REGISTRATION NUMBER: 32,
                                                                                                                                                                                                                                                                              CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM CCOMPATION
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: Medlen & Carroll,
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                                                                               TYPE: amino acid TOPOLOGY: linear
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CITY: San Francisco
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87.0%;
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Score 1622.5; DB 4;
Pred. No. 1.2e-168;
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US-09-252-991A-22991
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                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 267
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GENERAL INFORMATION:
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TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: ABRUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT ORGANISM: Pseudomonas aeruginosa
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                                                                                                                                                                                                                                                                                               Similarity
                              KASDVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSL 240
                                                                                               VSVPTMDAAEAFKLIKQQVNVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGNEERIRM 120
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                                                                                                                                              VSVPDMDAAEAFGKIKQQVNVPLVADIHFDYRIALRVAELGVDCLRINPGNIGREDRVKA 298
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                                                                               VVDAARERNIPIRIGVNAGSLEKDLQKKYGEPTPEALLESAMRHVDHLDKLDFQNFKVSV
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                                                                                                                                                                                                                                                                                           73.6%; Score 1372.5; DB 4; 73.8%; Pred. No. 4.9e-141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             US 60/094,190
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Indels

Gaps

238

60

180

358

Length

547; 1;

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US-09-170-187-6
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                                                                                                          US-09-170-187-6
                                                                                                                                                                                                                 REGISTRATION NUMBER: 32,837
REFERENCE/DOCKET NUMBER: CASE
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 705-8410
TELEPACE: (415) 397-8338
INFORMATION FOR SEO ID NO: 6:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 6, Application US/09170187
Patent No. 6383745
                                                   Query Match
Best Local Similarity
                                    Matches 372;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                            STRANDEDNESS:
TOPOLOGY: lin
MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/09/170,187
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/827,190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Rather, Philip N.
TITLE OF INVENTION: Methods For Screening For Antimicrobials
TITLE OF INVENTION: Utilizing aarC And Compositions Thereof
                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
NAME: Carroll, Peter G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
ADDRESSEE: Medlen & Carroll, LLP
STREET: 220 Montgomery Street, Suite 2200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
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1 MHNQAPIQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATV--NQIKALERVGADI 58
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: California
                                                                                                                                                                               amino acid
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                                    Conservative
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                                                                                                                                               linear
                                                                                                                             peptide
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                                                                                                                                                                not relevant
                                                     96.5%;
                                Score 1800; DB 4;
Pred. No. 4:9e-188;
0; Mismatches 0;
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                                                                    Length 384;
                                    Indels
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                                                                      US-08-827-190-5
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Patent No. 5858367
                   Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION: APPLICANT: Rather
                                                                                                                               TELEPHONE: (415) 705-8410
TELEFAX: (415) 397-8338
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 365 amino acids
TYPE:
                                                                                                                                                                                                       CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: CAITOII, Peter G.
REGISTRATION NUMBER: 32,837
REFERENCE/DOCKET NUMBER: CASE
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 705-8410
                                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0.
CURRENT APPLICATION DATA:
                                                                                   TOPOLOGY: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 220 Montgome
CITY: San Francisco
                                                                                                                      TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94104
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EARIRAKASQLDEARRIDVQQVEK 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RIRMVVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMR--HVDHLDRLNFD 174
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E: Medlen & Carroll, LLP
220 Montgomery Street, Si
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rather, Philip N.
VENTION: Methods For Screening For Antimicrobials
VENTION: Utilizing aarC And Compositions Thereof
                                                                                       protein
                   87.0%;
                                                                                                                                                                                                                                                                                                                                                                                      Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                     US/08/827,190
                                                                                                                                                                                                                                                 CASE-02443
Score 1622.5; DB 2;
Pred. No. 1.2e-168;
Pred. No. 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Suite
                                    Length 365;
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1 MHNQAPIQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVR 60

Matches 320;

Similarity

Conservative

24; Mismatches

Indels

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16:22:46 2003

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Title:
Perfect score:
Sequence:
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Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
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         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
  18.00
16.22.5
11.52.5
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3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*

4: /cgn2_6/ptodata/1/iaa/FCTUS_COMB.pep:*

5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*

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DVEATVNQIKALERVGADI 58 	Length 384; Indels 12; Gaps 6;						Š				-		Antimicrobials tions Thereof		· .	Sequence 2, Appli Sequence 4, Appli Sequence 31575, A	Sequence 19810, Sequence 26428,	31147, 18480, 20787	Sequence 27651, Sequence 2, Appl Sequence 26312,	Sequence Sequence Sequence	14, App 17411, 17731,	Sequence 17904,

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Search completed: November 23, 2003, 17:16:38 Job time: 63 secs

Best Local Similarity

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RESULT 13
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Best Local Similarity
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Arabidopsis thaliana (Mouse-ear cress).
Bukaryota; Viridiplantae; Streptophyta; Embryophyta;
Eukaryota; Magnoliophyta; eudicotyledons; core ev
Spermatophyta; Magnoliophyta; eudicotyledons; core ev
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
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SEQUENCE FROM N.A.
Querol J., Campos N., Imperial S., Boronat A.,
Rodriguez-Concepcion M.;
Rodriguez-Concepcion M.;
"Identification and functional analysis of plant orthologs of the
"Identification and functional analysis a role in plastid isopren
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TIGRFAMs;
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Miyajima N., Tabata S.;
"Structural analysis of Arabidopsis thaliana chromosome 5.
features of the 1.6 Mb regions covered by twenty physicall:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=Columbia;
MEDLINE=97471969; PubMed=9330910;
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Arabidopsis thaliana
                                                                                                     Submitted (OCT-2001) to the EMBL/GenBank/DDBJ EMBL; AF434673; AAO15446.1; -.
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01-MAR-2003
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Arabidopsis thaliana (Mouse-ear cress).
Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Euratophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosid
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosid
spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosid
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01-OCT-2002 (TrEMBLrel.
01-OCT-2002 (TrEMBLrel.
01-MAR-2003 (TrEMBLrel.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Arabidopsis cDNA clones.";
Submitted (APR-2002) to the
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                                                YTEDEYQKELQHIEQVFTPLVEKCKKYGRAMRIGTNHGSLSDRIMSYYGD
                                                                                                      CARDK-
                                                                                                                                                                                  AEAF----KLIKQQVNVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGNEERIRMVVD
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Last annotation update)
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7; Mismatches 86;
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Pred. No. 2.9e-25;
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RESULT 10
Q8GZRA
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TIGR; BR1778; -.
Complete proteome.
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Querol J., Imperial S., Boronat A., Rodriguez-Concepcion M.;
Querol J., Imperial S., Boronat A., Rodriguez-Concepcion M.;
"Identification and functional analysis of plant orthologs o
                                                                                                                                                                                                                                                                                                                                biosynthesis.";
Submitted (OCT-2001) to the EMBL/GenBank/DDBJ databases
EMBL; AF435086; AAO15447.1; -.
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Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; lamiids; Solanales; Solanaceae; Solanum.
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2.7e-26;
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Matches 105;
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Nguyen M., Karlin Neumann G., Southwick A., Lam B., Miranda M.,

Nguyen M., Karlin Neumann G., Banh J., Carninci P., Chen H.,

A Cheuk R., Chung M.K., Hayashizaki Y., Ishida J., Kamiya A., Kawai J.,

Kim C., Lin J., Liu S.X., Narusaka M., Pham P.K., Sakano H.,

Sakurai T., Satou M., Seki M., Shinn P., Yamada K., Shinozaki K.,

La Ecker J., Theologis A., Davis R. W.;

Submitted (FEB-2002) to the EMBL/GenBank/DDBJ databases.

Submitted (FEB-2005) GCpE;

InterPro; IPR006705; GCpE;

InterPro; IPR004588; IspG.

Pfam; PF04551; GcpE; 1.

R TIGRFAMS; TIGR0612; ispG gcpE; 1.

SEQUENCE 741 AA; 82157 MW; 957B11538F481585 CRC64;
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Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheop
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
eurosids II; Brassicales; Brassicaceae; Arabidopsis.

NCBI_TaxID=3702;
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RMKSAIGIGTLLQDGLGDTIRVSLTEPPEEEI
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Nakamura Y., Kaneko T., Sato S., Ikeuchi M., Katoh H., Sasamoto Watanabe A., Iriguchi M., Kawashima K., Kimura T., Kishida Y., Watsube A., Iriguchi M., Kawashima K., Kimura T., Kishida Y., Kiyokawa C., Kohara M., Matsumoto M., Matsuno A., Nakazaki N., Shimpo S., Sugimoto M., Takeuchi C., Yamada M., Tabata S.;
"Complete genome structure of the thermophilic cyanobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Synechococcus elongatus (Thermosynechococcus elongatus). Bacteria; Cyanobacteria; Chroococcales; Synechococcus.
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AP005372; BAC08548.1;
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Paulsen I.T., Seshadri R., Nelson K.E., Eisen J.A., Heidelberg J.I. Read T.D., Dodson R.J., Umayam L., Brinkac L.M., Beanan M.J., Baugherty S.C., Deboy R.T., Durkin A.S., Kolonay J.F., Madupu R., Nelson W.C., Aydelji B., Kraul M., Shetty J., Malek J., Van Aken S. Riedmuller S., Tettelin H., Gill S.R., White O., Salzberg S.L., Hoover D.L., Lindler L.E., Halling S.M., Boyle S.M., Fraser C.M., "The Brucella suis genome reveals fundamental similarities between animal and plant pathogens and symbionts."; Proc. Natl. Acad. Sci. U.S.A. 99:13148-13153(2002).
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Bacteria; Proteobacteria;
Brucellaceae; Brucella.
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SEQUENCE FROM N.A.

STRAIN-YS-314 / AJ 12310 / DSM 44549

Kawarabayasi Y., Yamazaki J., Hino Y.

Ikeo K., Suzuki M., Mashima J., Itoh

Usuda Y., Sugimoto S.;

"The entire genomic sequence of Coryn

submitted (MAY-2002) to the EMBL/GenB
                                                                                                                                                                                                                                                                                        Putative aminoglycoside CE1903.
                                                                                                                                                                                             Corynebacterineae; Corynebacteriaceae; NCBI_TaxID=152794;
                                                                                                                                                                                                                                         Corynebacterium efficiens.
Bacteria; Actinobacteria;
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Y., Kikuchi H.,
h T., Yamagishi
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93 AA; 41533 MW;
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tive 82; Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Complete
SEQUENCE
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EMBL; AE015769; AAN56310.1; -.
TIGR; SO3312; -.
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01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation updat
1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate sy
ISPG OR SO3312
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Bacteria; Proteobacteria;
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Q8D1Y3;
01-MAR-2003
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Aksoy S.;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=22297718; PubMed=12219091; MEDLINE=22297718; PubMed=12219091; Watanabe H.,
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Bacteria, Proteobacteria, Gammaproteobacteria,
Enterobacteriaceae, Wigglesworthia.
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1: sp archea:*
2: sp bacteria
3: sp fungi:*
4: sp human:*
5: sp inverteb
6: sp mammal:*
7: sp mhc:*
8: sp organel!
9: sp phage:*
10: sp phage:
11: sp roden:
12: sp virus:*
13: sp_vertebr
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· 1866
1 MHNQAPIQRRKSTR
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Q8dez8 vibrio vuln
Q8ec32 shewanella
Q8dly3 wiggleswort
Q8g7y6 bifidobacte
Q8eui6 mycoplasma
Q8dk70 synechococc
Q8f1h5 leptospira
Q8fyt2 brucella su
Q8gzr6 lycopersico
Q8rxg8 arabidopsis
Q8f27 arabidopsis
Q8bgz7 arabidopsis
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Godzyo otyza saciv	OPERIO OFFICE CONTROL	3		Q8dz63 streptococc	Q9c473 emericella	Q8f175 escherichia	Q97k41 clostridium	w		Q93ny9 anaplasma p	σ	Q8kur5 pseudomonas	Q9khs7 pseudomonas	Q9chv6 lactococcus	Q8tpa1 methanosarc	Q8pjz9 xanthomonas	Q9rng5 legionella	Q8xvk5 ralstonia s	Q8vsr0 actinobacil	O68221 anaplasma p	Q8eqa9 oceanobacil	Q9p4d5 emericella	Q9uxg1 sulfolobus	O27773 methanobact		Q8dj32 synechococc	Q8tzp6 pyrococcus	Q8r927 thermoanaer	QBijh7 plasmodium

## ALIGNMENTS

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TO	-2003 (TrEMBLrel.
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DT	(TrEMBLrel. 23, Last annotation
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GN	VV10427.
80	Vibrio vulnificus.
ဂ္ဂ	Bacteria; Proteobacteria; Gammaproteobacteria; Vibrionales;
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RN	[1]
RP	SEQUENCE FROM N.A.
RC	MCP6;
Ŗ <b>A</b>	Rhee J.H., Kim S.Y., Chung S.S., Kim J.J., Moon Y.H., Jeong H.,
RA	H.E.,
RT	genome sequence of Vibrio vulnificu
Į R	Submitted (DEC-2002) to the EMBL/GenBank/DDBJ databases.
, CR	_
2 X	Complete proteome.
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d iQ	Y Match 87.4%; Score 1631
<b>3</b> 0	Matches 320; Conservative 29; Mismatches 19; Indels 1; Gaps 1;
γQ	1 MHNQAPIQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVR 60
дb	1 MHNESPIIRRKSTRIYVGDVPIGDGAPIAVQSMTNTRTTDVAATVAQIKALENVGADIVR 60
Q	61 VSVPTMDAAEAFKLIKQQVNVPLVADIHFDYRIALKVABYGVDCLRINPGNIGNEERIRM 120
뫄	61 VSVPTWDAAEAFKLIKQQVSIPLVADIHFDYRIALKVAEYGVDCLRINPGNIGNEERIRS 120
δ	121 VVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSV 180
밁	121 VVDCARDKNIPIRIGVNGGSLEKDLQMKYGEPTPEALVESAMRHVDILDRLNFDQFKVSV 180

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nierman W.C., Feidblyum T.V., Laub M.T., Paulsen I.T., Nelson K.E.,
Eisen J., Heidelberg J.F., Alley M.R.K., Ohta N., Maddock J.R.,
Potocka I., Nelson W.C., Newton A., Stephens C., Phadke N.D., Ely B.,
DeBoy R.T., Dodson R.J., Durkin A.S., Gwinn M.L., Haft D.H.,
Kolonay J.F., Smit J., Craven M.B., Khouri H., Shetty J., Berry K.,
Utterback T., Tran K., Wolf A., Vamathevan J., Ermolaeva M., White O.,
Salzberg S.L., Venter J.C., Shapiro L., Fraser C.M.,
"Complete genome sequence of Caulobacter crescentus.";
Proc. Natl. Acad. Sci. U.S.A. 98:4136-4141(2001)
-1- FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate
(ME-2,4cPP) into 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                              TIGR; CC0851; -.

HAMAP; MF 00159; -; 1.

InterPro; IPR004588; IspG.

Pfam; PF04551; GcpE; 1.

TIGRFAMs; TIGR00612; ispG_gcpE; 1.

Isoprene biosynthesis; Complete proteome.

SEQUENCE 383 AA; 40788 MW; 8468EB400E338194 CRC64;
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STRAIN=ATCC 19089 / CB15;
MEDLINE=21173698; PubMed=11259647;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AE005761; AAK22836.1; -. PIR; H87354; H87354.
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Caulobacter crescentus.
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28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate synthase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ISPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIGR; CC0851;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Caulobacteraceae; Caulobacter
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PATHWAY: Nonmevalonate terpenoid biosynthesis pathway; sixth step. SIMILARITY: BELONGS TO THE ISPG FAMILY.
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247 EIKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDVSIIGCV 306
                                        194 MTVAAYYQLAEAIDCPLHLGVTEAGATRTGTVKSAIGIGAMLWAGIGDTIRVSLAADPVE
                                                            187 LAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSLAADPVE
                                                                                                                                        127 DKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSVKASDVF
                                                                                                                                                                                                 74 ESTAAFKTIAREAKVPLVADIHFHYKRGIEAAQAGAACLRINPGNIGSPDRVRDVIQAAR
                                                                                                                                                                                                                   DHGCSMRIGVNAGSLERELLEKYGEPCPDAMVESALNHARILQDHDFHEFKISVKASDPF 193
                                                                                                                                                                                                                                                            TRRQSRKIRVGSVEVGGDAPISVQSMTNTLTSDAAATLEQIRQLEEAGADIVRVSCPDV
                                                                                                                                                                                                                                                                                                  IQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVPTM
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                                                                                                                                                                                                                                                                                                                                                                       55.9%; Score 1042.5; 57.6%; Pred. No. 9.2e
                                                                                                                                                                                                                                                                                                                                                       57;
                                                                                                                                                                                                                                                                                                                                                       Mismatches
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9.2e-65;
ches 95; Indels 1;
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Db 254 EIKVGFDILKSLGLRHRGVNIIACPSCARQGFNVIKTVEALEERLAHISTPMSLSIIGCV 313

Qy 307 VNGPGEALVSTLGVTGGNKKSGL-YEDGVRKDRLDNNDMIDQLEARIRAKASQLDEARRI 365

Db 314 VNGPGEALMTDIGFTGGGAGAGMVYMAGKPDHKQSNEGMIDHIVDLVEKKAAEIQAAKAQ 373

QY 366 D 366

Db 374 D 374
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Search completed: November 23, 2003, 17:15:28
Job time : 18 secs

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Query Match
Best Local
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HSSP; P49058; 1EEP.
HAMAP; MF_00159; -; 1.
InterPro; IPR004588; IspG.
Pfam; PF04551; GcpE; 1.
TIGR08612; ispG_gcpE; 1.
Isoprene biosynthesis; Complete proteome.
Isoprene biosynthesis; Complete Proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Genome sequence of the endocellular bacterial Buchnera sp. APS.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P57374;
16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
16-DCT-2003 (Rel. 41, Last annotation update)
28-FEB-2003 (Rel. 41, Last annotation update)
1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate synthase.
1SPG OR GCPE OR BUJ87.
1SPG OR GCPE OR BUJ87.
Buchnera aphidicola (subsp. Acyrthosiphon pisum) (Acyrthosiphon pisum) symbiotic bacterium).

Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nature 407:81-86(2000).

-!- FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate (ME-2,4cPP) into 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate (By similarity).

-!- PATHWAY: Nonmevalonate terpenoid biosynthesis pathway; sixth start SIMILARITY: BELONGS TO THE ISPG FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=20445173; PubMed=10993077; Shigenobu S., Watanabe H., Hattori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN=Tokyo 1998;
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                                                                                                                                                                                                               240
361
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                                                                                                                                                                                                                                                         MVVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVS
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                                                                                 VSIIGCVVNGIGESKIATLGLAGSHKKSAFYEDGVRQKEKIKNEEIIEKMEIKIRKKIDK
                                                                                                       VSIIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGVR-KDRLDNNDMIDQLEARIRAKASQ
                                                                                                                                                                                                                                                                                                                                               EIISYAKDENIPIRIGVNAGSLEKDILKKYKIPTPDALVESAMRHIEYFDALNFNQFKVS
                                                                                                                                                                                                                                                                                                                                                                                                                                  RISIPNLKAAESFKEIKKQTNVPLIADIHFDYRLALQAIKYGADCLRINPGNIGNKRRVS
LNNSKK 366
                                      LDEARR
                                                                                                                                                                      MNNKCKIINRRKSDRIYVGKVAIGNNAPISVQSMTNTRTTNISETINQILELQKVGVDIV
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                                        364
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Pred. No. 2.9e-
65; Mismatches
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mbiont of
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Best Local S
Matches 234
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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Q8DIY3;
15-SEP-2003 (Rel. 42, Created)
15-SEP-2003 (Rel. 42, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
15-SEP-2003 (Rel. 42, Last annotation update)
1-hydroxy-2-methyl-2-(B)-butenyl 4-diphosphate synthase.
ISPG OR GCPE OR WIGBR5730.
Wigglesworthia glossinidia brevipalpis.
Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Akman L.,
Aksoy S.;
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between the Swiss Institute of Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Genome sequence of the endocellular obligate symbiont of flies, Wigglesworthia glossinidia.";
Nat. Genet. 32:402-407(2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
MEDLINE=22297718; PubMed=12219091;
Watanabe H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Enterobacteriaceae; Wigglesworthia.
NCBI_TaxID=36870;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate (ME-2,4cPP) into 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate (By similarity).
PATHWAY: Nonmevalonate terpenoid biosynthesis pathway; sixth step. SIMILARITY: BELONGS TO THE ISPG FAMILY.
307
                                             307
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                                                                                                LAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSLAADPVE
                                                                                                                                                                                                                                                                                                                                     DKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSVKASDVF
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                        VNGPGEALVSTLGVTGGNKKSGLYEDGVR-KDRLDNNDMIDQLEARIRAKASQLD
                                                                                                                                                                                                         TCVQSYKLLASKIDQPLHLGITESGSMLHGSIKSSIGIGLLLSEGIGDTLRVSLAADPIE
                                                                                                                                                                                                                                                                                                                                                                                                                EAAESFKIIKRNVSIPIVADIHFDYRIALKAAEYGADCLRINPGNIGKLNRIISVVSTAK
VNGLGEANRADIGISGSRNKSILFENGLRNNNKINNEEIIDKLEKYIRKKVKILN
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                                                                                                                                                                                                                                                                                                          GVNSGSLEKDIENKYGINNPKSLFESAMRHVNILEKLNFDMFKVSVKSSDVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               65.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62;
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Pred. No. 1.9e.
62; Mismatches
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.9e-77;
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                                                                                                                                        RESULT 12
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Best Local S
Matches 267
TISPG_BUCAP
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28-FEB-2003
28-FEB-2003
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MEDLINB=20437337; PubMed=10984043;
MEDLINB=20437337; PubMed=10984043;
Stover C.K., Pham X.-Q.T., Erwin A.L., Mizoguchi S.D., Warrener Stover C.K., Pham X.-Q.T., Erwin A.L., Mozguchi S.D., Warrener Hickey M.J., Brinkman F.S.L., Hufnagle W.O., Kowalik D.J., Lagr Garber R.L., Goltry L., Tolentino E., Westbrock-Wadman S., Yuan Brody L.L., Coulter S.N., Folger K.R., Kast A., Larbig K., Lim R Smith K.A., Spencer D.H., Wong G.K.-S., Wu Z., Paulsen I.T., Reizer J., Saier M.H., Hancock R.E.W., Lory S., Olson M.V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for con
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIGRFAMS; TIGR00612; ispG
Isoprene biosynthesis; Com
SEQUENCE 371 AA; 40056
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Nature 406:959-964(2000).
                                                                                                              BUCAP
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InterPro; IPR004588; I
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pro; IPR004500,

m; Pr04551; GcpE; 1.

RFAMs; TIGR00612; ispG_gcpE; 1.

Anotheris; Complete pro;

40056 MW; F33F
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PATHWAY: Nonmevalonate terpenoid biosynthesis SIMILARITY: BELONGS TO THE ISPG FAMILY.
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                                                                                      STANDARD;
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sequence
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F33FC1FCEF017117 CRC64;
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D.J., Lagrou M.,
n S., Yuan Y.,
K., Lim R.M.,
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HAMAP; MF 00159; -; 1.
InterPro; IPR006705; GcpE.
InterPro; IPR004588; IspG.
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Pfam; PF04551; GCpE; 1.
TIGRFAMs; TIGR00612; ispG_gcpE; 1.
Isoprene biosynthesis; Complete pr
SEQUENCE 367 AA; 40440 MW; 4CF
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Tamas I., Klasson L., Canbaeck B., Naeslund A.K., Eriksson A.-S., Wernegreen J.J., Sandstroem J.P., Moran N.A., Andersson S.G.E.; "50 million years of genomic stasis in endosymbiotic bacteria."; Science 296:2376-2379(2002).
Science 296:2376-2379(2002).
-!- FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate (ME-2,4cPP) into 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
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Buchnera aphidicola (subsp. Schizaphis graminum)
Bacteria; Proteobacteria; Gammaproteobacteria; E
Enterobacteriaceae; Buchnera.
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1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
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PATHWAY: Nonmevalonate
SIMILARITY: BELONGS TO
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44; Conservative
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                                                                                                                    AADPVEEVKVGYDILKTLGIRFRGVNFIACPTCSRQEFNVIDVVNQLEKNLEDLSTPMNV
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                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1285.5;
Pred. No. 1.66
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Mismatches
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es 57;
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RESULT 13 ISPG\_BUCAI ID ISPG\_BUCAI

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RESULT 10
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Best Local S
Matches 320
                                                                                                     ISPG PASMU STANDARD; PRT; 367 AA. P57987; 16-OCT-2001 (Rel. 40, Created) 16-OCT-2001 (Rel. 40, Last sequence update) 28-FEB-2003 (Rel. 41, Last annotation update) 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate ISPG OR GCPE OR PM2010.
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TIGR; H10368; -.

INTERPROSE -: 1.

InterPro; IPR004588; IspG.

Pfam; PP04551; GcpE; 1.

TIGRPAMs; TIGR00612; ispG_gcpE; 1.

Isoprene biosynthesis; Complete proteome.

SEQUENCE 368 AA; 40116 MW; DC99EA15A50ED01B CRC64;
Bacteria; Proteobacteria; Gammaproteobacteria; Pasteurellaceae; Pasteurella. NCBI_TaxID=747;
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                                                                                  Pasteurella multocida.
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PATHWAY: Nonmevalonate terpenoid biosynthesis pathway; sixth sixIMILARITY: BELONGS TO THE ISPG FAMILY.
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Pred. No. 2.1e-103;
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RESULT 11
ISPG P.
ISPG P.
AC Q9HXJ4
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Matches 320
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HAMAP; MF_00159; -; 1.
InterPro; IPR004588; IspG.
Pfam; PF04551; GcpE; 1.
TICRFAMS; TIGR00612; ispG_9cpE; 1.
Isoprene biosynthesis; Complete prot SEQUENCE 367 AA; 39969 MW; 1918C
                                                                                 Q9HXJ4;
28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosph
ISPG OR PA3803.
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"Complete genomic sequence of Pasteurella multocida Pm70.";
Proc. Natl. Acad. Sci. U.S.A. 98:3460-3465(2001).
-!- FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate
(ME-2,4cPP) into 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
(By similarity).
-!- PATHWAK: Nonmevalonate terpenoid biosynthesis pathway; sixth st
-!- SIMILARITY: BELONGS TO THE ISPG FAMILY.
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SEQUENCE FROM N.A.
STRAIN=Pm70;
MEDLINE=21145866; PubMed=11248100;
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88.9%;
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Pred. No. 4e-103;
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1918C5702642AEE8 CRC64;
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Bacteria; Proteobacteria; Gamm Pseudomonadaceae; Pseudomonas. Pseudomonas aeruginosa

Gammaproteobacteria;

Pseudomonadales;

4-diphosphate

synthase

update)

SEQUENCE FROM N.A

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RESULT 8
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Matches 323;
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Q9KTX1;
                      between
                                                                                                                                                                   Office Accept (2000).

Nature 406:477-483 (2000).

-i- FUNCTION: Converts 2C-methyl-D-erythritol (ME-2,4CPP) into 1-hydroxy-2-methyl-2-(E)
                                                                                                                                                                                                                                                                                                       MEDLINE=20406833; PubMed=10952301;
MEDLINE=20406833; PubMed=10952301;
Meidelberg J.F., Eisen J.A., Nelson W.C., Clayton R.A., Gwinn M. Heidelberg J.F., Eisen J.A., Nelson W.C., Clayton J.D., Umayam L.A., Dodson R.J., Haft D.H., Hickey E.K., Peterson J.D., Umayam L.A., Gill S.R., Nelson K.E., Read T.D., Tettelin H., Richardson D., Gill S.R., Nelson K.E., Read T.D., Tettelin H., Richardson D., Ermolaeva M.D., Vamathevan J., Bass S., Qin H., Dragoi I., Selle McDonald L., Utterback T., Fleischmann R.D., Nierman W.C., White Salzberg S.L., Smith H.O., Colwell R.R., Mekalanos J.J., Venter Fraser C.M.;
                                                                                                                                                                                                                                                         "DNA sequence of both cholerae.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacteria; Proteobacteria;
Vibrionaceae; Vibrio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
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s SWISS-PROT entry is copyright. It is produced through a collab-
geen the Swiss Institute of Bioinformatics and the EMBL outst
European Bioinformatics Institute. There are no restrictions
                                                                                                                (ME-2,4CPP) into 1-hydroxy-2-meth
(By similarity).
PATHWAY: Nonmevalonate terpenoid
SIMILARITY: BELONGS TO THE ISPG I
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Best Local S
Matches 318
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P44667;
01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence up
28-FEB-2003 (Rel. 41, Last annotation
1-hydroxy-2-methyl-2-(B)-buttenyl 4-dip
ISPG OR GCPE OR HI0368.
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TIGR; WE 00159; -; 1.
Interpro; IPR004588; ISpG.
Pfam; PF04551; GcpE; 1.
TIGREAMS; TIGR0612; ispG gcpE; 1.
ISOPTENE biosynthesis; Complete pr
SEQUENCE 376 AA; 40862 MW; 341
SEQUENCE FROM N.A.

STRAIN=Rd / KW20 / ATCC 51907;

MEDLINE=95350630; PubMed=7542800;

Fleischmann R.D., Adams M.D., White O., Clayton R.A., Kirkness I Fleischmann R.D., Adams M.D., White O., Clayton R.A., Merrick C. Rerlavage A.R., Bult C.J., Tomb J.-F., Dougherty B.A., Merrick C. McKenney K., Sutton G., Fitzhugh W., Fields C.A., Gocayne J.D., Scott J.D., Shirley R., Liu L.-I., Glodek A., Kelley J.M., Scott J.D., Shirley R., Liu E.-I., Glodek A., Kelley J.M., Scott J.D., Shirley R., Liu F., File B.D., Fillips C.A., Spriggs T., Hedblom E., Cotton M.D. Utterback T.R., Hanna M.C., Nguyen D.T., Saudek D.M., Brandon R. Fine L.D., Fritchman J.L., Fuhrmann J.L., Geoghagen N.S.M., Gnehm C.L., McDonald L.A., Small K.V., Fraser C.M., Smith H.O., Venter J.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HAEIN
                                                                                                                                                                                                                                                                                                                                                                Haemophilus influenzae.
Bacteria; Proteobacteria; Gan
Pasteurellaceae; Haemophilus
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                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=727;
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189G PROST STANDARD; PRT; 365 AA.

P72241;
16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
                                                                                                                                                                                                                                                                                                                           HAMAP; MF 00159; -; 1.
InterPro; IPR004588; IspG.
Pfam; PF04551; GcpE; 1.
TIGRFAM8; TIGR00612; ispG_gcpE; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rather P.N., Solinsky K.A., Paradise M.R., Parojcic M.M.;
"aarC, an essential gene involved in density-dependent regulation of
the 2.--acetyltransferase in Providencia stuartii.";
J. Bacteriol. 179:2267-2273(1997).
-i- FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate
(ME-2,4cPP) into 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
(By similarity). Involved in density-dependent regulation of 2'-N-
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                                                                                                                                                                                                                                                                                                                                                                                                                           entities requires a license agreement (S or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acetyltransferase.
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Providencia.
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Parkhill J., Wren B.W., Thomson N.R., Titball R.W., Holden M.T.G., Prentice M.B., Sebaihia M., James K.D., Churcher C., Mungall K.L., Baker S., Basham D., Bentley S.D., Brooks K., Cerdeno-Tarraga A.M., Chillingworth T., Cronin A., Davies R.M., Davis P., Dougan G., Celtwell T., Hamlin N., Holroyd S., Jagels K., Karlyshev A.V., Leather S., Moule S., Oyston P.C.F., Quail M., Rutherford K., Simmonds M., Skelton J., Stevens K., Whitehead S., Barrell B.G.; "Genome sequence of Yersinia pestis, the causative agent of plague."; Nature 413:523-527(2001).
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28-FEB-2003 (Rel. 41, Last sequence up
28-FEB-2003 (Rel. 41, Last annotation
1-hydroxy-2-methyl-2-(E)-butenyl 4-dig
ISPG OR GCPE OR YPO2879 OR Y1353.
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P58672;
                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Genome sequence of Yersinia pestis KIM.";

J. Bacteriol. 18:4601-4611(2002).

-i- FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate
-i- (ME-2,4cPP) into 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Deng W., Burland V., Plunkett G. III, Boutin A., Mayhew G.F., Perna N.T., Rose D.J., Mau B., Zhou S., Schwartz D.C., Fetherston J.D., Lindler L.E., Brubaker R.R., Plano G.V., Straley S.C., McDonough K.A., Milles M.L., Matson J.S., Blattr Perry R.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
STRAIN-KIM5 / Biovar Mediaevalis;
                                                                                                                                                  EMBL; AJ414154; CAC92130.1;
EMBL; AE013738; AAM84926.1;
PIR; AG0350; AG0350.
                                                                                                                                                                                                                                                                     entities requires a license agreement (See http://www.isb-sib
or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Yersinia pestis
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PATHWAY: Nonmevalonate terpenoid biosynthesis SIMILARITY: BELONGS TO THE ISPG FAMILY.
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HAMAP; MF 00159; -; 1.
InterPro; IPR006705; GcpE.
InterPro; IPR004588; IspG.
Pfam; PF04551; GcpE; 1.

ispG\_gcpE;

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087516;
15-SEP-2003 (Rel. 42, Created)
15-SEP-2003 (Rel. 42, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
                                                                                                                                                                                                                                                                                                                                                              EMBL; AP005075; BAC58871.1; -.
HAMAP; MF_00159; -; 1
Isoprene biosynthesis; Complete proteome.
1soprene biosynthesis; Camplete proteome.
1soprene biosynthesis; Camplete proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Makino K., Oshima K., Kurokawa K., Yokoyama K., Uda T., Tagomori K. Iijima Y., Najima M., Nakano M., Yamashita A., Kubota Y., Kimura S. Yasunaga T., Honda T., Shinagawa H., Hattori M., Iida T.; "Genome sequence of Vibrio parahaemolyticus: a pathogenic mechanism distinct from that of V. cholerae.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vibrio parahaemolyticus.
Bacteria; Proteobacteria;
Vibrionaceae; Vibrio.
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PATHWAY: Nonmevalonate terpenoid biosynthesis SIMILARITY: BELONGS TO THE ISPG FAMILY.
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                   AADPVEEIKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDV
                                                                            KASDVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLLSEGIGDTLRVSL
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                                                                                                                                        \VVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSV
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                                                             KASDVFLAVDSYRLLAKKIDOPLHLGITEAGGARAGAVKSAVGLGMLLSEGIGDTLRISL
AADPVEEIKVGFDILKSLRIRSRGINFIACPSCSRQEFDVIGTVNALEQRLEDIITPMDV
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e-106;
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Choy H.E.;
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15-SEP-2003 (Rel. 42, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
ISPG OR WV10427.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam, PF04551; GcpE; 1.
TIGROM612; ispG_gcpE; 1.
Isoprene biosynthesis; Complete proteome.
SEQUENCE 372 AA; 40573 MW; 6C73C2B8819B0285 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; AE016798; AAO08950.1; -. HAMAP; MF 00159; -; 1. Pfam; PF04551; GcpE; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=CMCP6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=672;
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Vibrionaceae; Vibrio.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mplete genome sequence of Vibrio vulnificus CMCP6."; mitted (DEC-2002) to the EMBL/GenBank/DDBJ databases. FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate (ME-2,4cPP) into 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate (By similarity).

(By similarity).

PATHWAY: Nonmevalonate terpenoid biosynthesis pathway; sixth st SIMILARITY: BELONGS TO THE ISPG FAMILY.
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VVDCARDKNIFIRIGVNAGSLEKDLQEKYGEFTFQALLESAMRHVDHLDRLNFDQFKVSV
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86.7%;
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Pred. No. 2.66
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RESULT 3
ISPG SALTI
ISPG SALTI
ID 158670
AC P58670
DT 28-FEB
DT 28-FEB
DT 15-SEP
DE 1-hydr
GN ISPG
OS Salmon
OC Bacter
OC NCBIT
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Best Local
                                                                         ISPG_SALTI STANDARD; PRT; 372 AA. P58670; 28-FEB-2003 (Rel. 41, Created) 28-FEB-2003 (Rel. 41, Last sequence update) 15-SEP-2003 (Rel. 42, Last annotation update) 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate ISPG_OR_GCPE_OR_STY2768 OR T0333.
 Enterobacteriaceae; Salmonella
NCBI_TaxID=601;
[1]
                                              Bacteria; Proteobacteria; Gammaproteobacteria;
                                                              Salmonella typhi
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StyGene; SG?????; ispG.
HAMAP; MF_00159; -; i.
InterPro; IPR006705; GcpE.
InterPro; IPR004588; IspG.
Pfam; PF04551; GcpE; 1.
TIGR7AMs; TIGR00612; ispG_gcpE; 1.
Isoprene biosynthesis; Complete proteome.
SEQUENCE 372 AA; 40625 MW; 0486F8D38EC2AC9F CRC64;
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Nature 413:852-856(2001).

Nature 413:852-856(2001).

-I- FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate (ME-2,4cPP) into 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
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PATHWAY: Nonmevalonate terpenoid biosynthesis pathway; sixth step.

SIMILARITY: BELONGS TO THE ISPG FAMILY.
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98.7%;
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Pred. No. 1.1e
3; Mismatches
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Best Local
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EMBL; AE016835, AA068056.1; -.
HAMAP; MF_00159; -; 1.
InterPro; IPR006705; GCpE.
InterPro; IPR006705; IspG.
Pfam; PF04551; GCpE; 1.
TIGRFAMs; TIGR00612; ispG_gcpE; 1.
Isoprene biosynthesis; Complete protSEQUENCE 372 AA; 40626 MW; 3E3D5
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Parkhill J., Dougan G., James K.D., Thomson N.R., Pickard D., Wain of Churcher C., Mungall K.L., Bentley S.D., Holden M.T.G., Sebaihia M. Churcher C., Mungall K.L., Bentley S.D., Holden M.T.G., Sebaihia M. Baker S., Basham D., Brooks K., Chillingworth T., Connerton P., Cronin A., Davis P., Davies R.M., Dowd L., White N., Farrar J., Feltwell T., Hamlin N., Haque A., Hien T.T., Holroyd S., Jagels K., Krogh A., Larsen T.S., Leather S., Moule S., O'Gaora P., Parry C., Couail M., Rutherford K., Simmonds M., Skelton J., Stevens K., Whitehead S., Barrell B.G.;
"Complete genome sequence of a multiple drug resistant Salmonella enterica serovar Typhi (T18.")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for con entities requires a license agreement (See http://www.isb-sib.ch/ar or send an email to license@isb-sib.ch).
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-!- FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate (ME-2,4cPP) into 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate (By similarity).
-!- PATHWAY: Nonmevalonate terpenoid biosynthesis pathway; sixth ste-i- SIMILARITY: BELONGS TO THE ISPG FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
STRAIN=TY2 / ATCC 700931;
STRAIN=TY2 / ATCC 700931;
MEDLINE=22531367; PubMed=12644504;
Deng W., Liou S.-R., Plunkett G. III, Mayhew G.F., Rose D.J.,
Burland V., Kodoyianni V., Schwartz D.C., Blattner F.R.;
"Comparative genomics of Salmonella enterica serovar Typhi st:
and CT18.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation
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[2]
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$IIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGVRKDRLDNNDMIDQLEARIRAKASQLD
                                                                                                                      VVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSV
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                                                                         AADPVEEIKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDV
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98.1%;
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STRAIN-RIZ / MC4100;
STRAIN-RIZ / MC4100;
MEDLINE=21099853; PubMed=11163766;
Campos N., Rodriguez-Concepcion M., Seemann M., Rohmer M., Boronat A.;
"Identification of gcpE as a novel gene of the 2-C-methyl-D-erythritol
4-phosphate pathway for isoprenoid biosynthesis in Escherichia coli.";
FEBS Lett. 488:170-173(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.

STRAIN=06:H1 / CFT073 / ATCC 700928;

MEDLINE=22388234; PubMed=12471157;

MEDLINE=22388234; PubMed=12471157;

Welch R.A., Burland V., Plunkett G. III, Redford P., Ro
Rasko D., Buckles E.L., Liou S.-R., Boutin A., Hackett
Mayhew G.F., Rose D.J., Zhou S., Schwartz D.C., Perna N
Mobley H.L.T., Donnenberg M.S., Blattner F.R.;

"Extensive mosaic structure revealed by the complete ge
of uropathogenic Escherichia coli.";

Proc. Natl. Acad. Sci. U.S.A. 99:17020-17024(2002).
                                                                                                                     This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EW the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and entities requires a license agreement (See http://www.isb-sor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Primary structure of histidine-tRNA synthetase of hisS transcripts.";
J. Biol. Chem. 260:10063-10068(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-0157:H7 / RIMD 0509952;

MEDLINE-21156231; PubMed=11258796;

Hayashi T., Makino K., Ohnishi M., Kurokawa K., Ishii K., Yokoya Hayashi T., Makino E., Nakayama K., Murata T., Tanaka M., Tobe 1 Iida T., Takami H., Honda T., Sasakawa C., Ogasawara N., Yasunac Kuhara S., Shiba T., Hattori M., Shinagawa H.;

"Complete genome sequence of enterohemorrhagic Escherichia coli 0157:H7 and genomic comparison with a laboratory strain K-12.";

DNA Res. 8:11-22(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-0157:H7 / EDL933 / ATCC 700927;

MEDLINE-21074935; PubMed=11206551;

Perna N.T., Plukkett G. III, Burland V., Mau B., Glasner J.D.,

Rose D.J., Mayhew G.F., Evans P.S., Gregor J., Kirkpatrick H.A.,

Posfai G., Hackett J., Klink S., Boutin A., Shao Y., Miller L.,

Grotbeck E.J., Davis N.W., Lim A., Dimalanta E.T., Potamousis K.,

Apodaca J., Anantharaman T.S., Lin J., Yen G., Schwartz D.C.,

Welch R.A., Blattner F.R.;

"Genome sequence of enterchaemorrhagic Escherichia coli 0157:H7.";
                                                                                                                                                                                                                                                                                                                                                                               "GcpE is involved in the 2-C-methyl-D-erythritol 4-phosphate pathway of isoprenoid biosynthesis in Escherichia coll.";
J. Bacteriol. 181:2411-2416(2001).
-!- FUNCTION: Converts 2C-methyl-D-erythritol 2,4-cyclodiphosphate
-!- FUNCTION: The 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate
-!- BATHMAY: Nonmevalonate terpenoid biosynthesis pathway; sixth ste
-!- SIMILARITY: BELONGS TO THE ISPG FAMMIY.
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[7]
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AE000338;
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EMBL; D90881; BAA20919.1; -.
EMBL; AE016764; AANB1487.1; -.
EMBL; AE005481; AAG57625.1; -.
EMBL; AE005481; AAG57625.1; -.
EMBL; M1843; -; NOT_ANNOTATED_CDS.
EMBL; M1843; -; NOT_ANNOTATED_CDS.
PIR; A91051; A91051.
PIR; E85895; E85895.
PIR; E35895; E35895.
ECOGENE; EG10370; iBpG.
ECOGENE; EG10370; iBpG.
ECOGENE; EG10370; iBpG.
FAMAP; MF 00159; -; 1.
InterPro; IPR004588; ISpG.
Pfam; PF04551; GCpE; 1.
TIGRPAMS; TIGR00612; iSpG_GCPE; 1.
Isoprene biosynthesis; Complete prote SEQUENCE 372 AA; 40683 MW; 3666FE
SEQUENCE FROM N.A.
STRAIN=LT2 / SGSC1412 / ATCC 700720;
MEDLINE=21534948; PubMed=11677609;
McClelland M., Sanderson K.E., Spieth J., Clifton S.W.,
Courtney L., Porwollik S., Ali J., Dante M., Du F., Hou
Leonard S., Nguyen C., Scott K., Holmes A., Grewal N., N
Ryan E., Sun H., Florea L., Miller W., Stoneking T., Nh
Waterston R., Wilson R.K.;
"Complete genome sequence of Salmonella enterica serovan
                                                                                                                                                                                                                                                                                                                                                                                     TSPG_SALTY STANDARD; PRT; 372 AA. P58671; P58671; 28-FEB-2003 (Rel. 41, Created) 28-FEB-2003 (Rel. 41, Last sequence update) 28-FEB-2003 (Rel. 41, Last annotation update) 1-hydroxy-2-methyl-2-(E)-butenyl 4-diphosphate ISPG OR GCPE OR STM2523.
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T., Burland V., Mayhew G.F., , Rose D.J.,  12.";  Isono K., Mitsuhashi N., moto H., sivasundaram S., ara K., Wada C., Escherichia coli nkage map and	terial richia Bacher	P58666 anabaena sp 083460 treponema p 091xc9 deinococcus 091u34 neisseria m 095240 neisseria m 098fg0 rhizobium 1 08y17 brucella me 092119 rhizobium a 092119 rhizobium s 058665 agrobacteri 084060 chlamydia t 084060 chlamydia t

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C;Date: 08-May-1998 #sequence_revision 08-May-1998 #text_change 20-Sep-1999
C;Accession: F70433
R;Deckert, G.; Warren, P.V.; Gaasterland, T.; Young, W.G.; Lenox, A.L.; Graham, D.E.;
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A;Title: The complete genome of the hyperthermophilic bacterium Aquifex aeolicus.
A;Reference number: A70300; MUID:98196666; PMID:9537320
A;Accession: F70433
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D.; Jones, L.M.; Karst, U.
Science 294, 849-852, 2001
A; Authorse: Kreft, J.; Kuhn, M.; Kunst, F.; Kurapkat, G.; Madueno, E.; Maitournam ok, C.; Schlueter, T.; Simoes, N.; Tierrez, A.; Vazquez-Boland, J.A.; Voss, H.;
A,Title: Comparative genomics of Listeria species.
A; Reference number: AB1077; MUID:21537279; PMID:11679669
A; Accession: A11254
A; Status: preliminary
A; Molecule type: DNA
A; Residues: 1-368 GGLA>
A; Residues: 1-368 GGLA>
A; Cross-references: GB:NC_003210; PIDN:CAC99519.1; PID:g16410870; GSPDB:GN00177
A; Experimental source: strain EGD-e
C; Gene: Imo1441
C; Superfamily: gcpE protein
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                                                                                                                                                                                      KVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDVSIIGCVVN
                                                                                                                                                                                                                                           IEAYDKASRAFNYPLHLGITESGTQFAGGIKSAAGLGAILSLGIGNTLRVSLSADPVEEI
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                              GPGEAREADIGIAGSNGEGLLFRHGKIIRKVPEAIMIDELKKEIDILAEEF-FVKKIDLE
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49.2%; Pred. No. 1.2e-52;
vative 67; Mismatches 115; Indels
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Voss, H.; Wehland,
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A;Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Gallerc iech, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Hosono, S.; Hullo, M.F.; Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardinois, Y.; Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardinois, Y.; M.; Ogawa, K.; Ogiwara, A.; Oudega, B.; Park, S.H.; Parro, V.; Pohl, T.M.; Portetelle, Rieger, M.; Rivolta, C.; Rocha, E.; Roche, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanlon, A; Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Seror, akeuchi, M.; Tamakoshi, A.; Tanaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchiyama, T.; Winters, P.; Wipat, A.; Yamamoto, H.; Yamane, K.; Yasumoto, K.; Yata, K.; Yoshida, K. A; Reference number: A69580; MUID:98044033; PMID:9384377
A; Recession: C69555
A; Status: preliminary; nucleic acid sequence not shown; translation not shown A; Experimental source: strain 168
C; Genetics:
A; Gene: yqff
C; Superfamily: gcpE protein
RESULT
F70433
GcpE pi
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C;Species: Bacillus subtilis
C;Date: 05-Dec-1997 #sequence_revision 05-Dec-1997 #text_change
C;Accession: C69955
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AEAFKLIKQQVNVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGNEERIRMVVDCARDK
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                                                                                                                                                                                                                                           GPGEAREADIGIAGARGEGLLFRKGKIVRKVPEETMVEELKKEIDILAEEHYAKLEAEKA 368
                                                                                                                                                                                                                                                                                                                                                    KVARELLKSFGLASNAATLISCPTCGRIEIDLISIANEVEEYISKIKAPIKVAVLGCAVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                       IEAYEKAAKAFDYPLHLGITESGTLFAGTVKSAAGLGAILSKGIGNTMRISLSADPVEEV
     Aquifex aeolicus
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gcpE protein [imported] - Caulobacter crescentus
C;Species: Caulobacter crescentus
C;Species: Caulobacter crescentus
C;Date: 20-Apr-2001 #sequence_revision 20-Apr-2001 #text_change 10-May-2001
C;Accession: H87354
R;Nierman, W.C.; Feldblyum, T.V.; Paulsen, I.T.; Nelson, K.E.; Eisen, J.; Heidelberg, J.
B.; Laub, M.T.; DeBoy, R.T.; Dodson, R.J.; Durkin, A.S.; Gwinn, M.L.; Haft, D.H.; Kolon
n, J.; Ermolaeva, M.; White, Salzberg, S.L.; Shapiro, L.; Venter, J.C.; Fraser, C.M.
Proc. Natl. Acad. Sci. U.S.A. 98, 4136-4141, 2001
A;Title: Complete Genome Sequence of Caulobacter crescentus.
A;Reference number: A87249; MUID:21173698; PMID:11259647
gcpE protein [imported] - Clostridium acetobutylicum
;Species: Clostridium acetobutylicum
C;Date: 14-Sep-2001 #sequence_revision 14-Sep-2001 #text_change 30-Sep-2001
C;Accession: G97121
C;Accession: G97120
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C;Superfamily: gcpE protein
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C;Genetics:
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A; Residues: 1-383 <STO>
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A; Nolecule type: DNA
A; Molecule type: DNA
A; Residues: 1-367 <STO>
A; Cross-references: GB:AP001511; GB:BA000004; NID:g10173727; PIDN:BAB05120.1;
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; Pred. No. 1.2e-53;
64; Mismatches 114;
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Pred. No. 5.6e-54;
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; Gocayne, J.D.; Scott, J.; Shirley, R.; Liu, L.T.; Glodek, A.; Kelley, J.M.; Weidman, D.M.; Brandon, R.C.; Fine, L.D.; Fritchman, J.L.; Fuhrmann, J.L.; Geoghagen, N.S.M. Science 269, 496-512, 1995
A;Authors: Gnehm, C.L.; McDonald, L.A.; Small, K.V.; Fraser, C.M.; Smith, H.O.; Venter, A;Title: Whole-genome random sequencing and assembly of Haemophilus influenzae Rd. A;Reference number: A64000; MUID:95350630; PMID:7542800
A;Accession: H64063
A;Status: nucleic acid sequence not shown; translation not shown
A;Molecule type: DNA
A;Residues: 1-368 cTIGR>
A;Cross-references: GB:U32721; GB:L42023; NID:g1573334; PIDN:AAC22026.1; PID:g1573337; C;Genetics:
A;Gene: gcpE
C;Superfamily: gcpE protein
                                                                                                            A;Status: preliminary
A;Molecule type: DNA
A;Molecule type: DNA
A;Residues: 1-371 <STO>
A;Cross-references: GB:AE004798; GB:AE004091; NID:g9949963; PIDN:AAG07190.1; GSPDB:GN00:
A;Experimental source: strain PAO1
                                                                                                                                                                                                                                                                                                                                                    conserved hypothetical protein PA3803 [imported] - Pseudomonas aeruginosa ()
C;Species: Pseudomonas aeruginosa
C;Date: 15-Sep-2000 #sequence_revision 15-Sep-2000 #text_change 31-Dec-2000
C;Date: F83171
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                                                                                                                                                                                                                                                                  R;Stover, C.K.; Pham, X.Q.; Erwin, A.L.; Mizoguchi, S.D.; adman, S.; Yuan, Y.; Brody, L.L.; Coulter, S.N.; Folger, R.; Lory, S.; Olson, M.V.; Lory, S.; Olson, M.V.; Nature 406, 959-964, 2000
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Query Match
Best Local S
Matches 267
                                                                     ;Superfamily:
                                                                                         ;Gene: PA3803
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 Conservative
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73.6%; Score 1372.5; DB 2; 73.8%; Pred. No. 1.7e-87; 1tive 46; Mismatches 48;
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Pred. No. 1.8e-103;
O; Mismatches 22;
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K.; Lim,
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gcpE protein [imported] - BrigcpE protein [imported] - BrigcpE protein E84963
C;Accession: E84963
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G;Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 2:
C;Accession: E84963
R;Shigenobu, S; Watanabe, H.; Hattori, M.; Sakaki, Y.; Ishikawa,
Nature 407, 81-86, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Molecule type: DNA
A;Residues: 1-368 <STO>
A;Cross-references: GB:AP000398; GSPDB:GN00144
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C;Superfamily: gcpE protein
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242; Conserv
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                                                                                                                                                               MVVDCARDKNIFIRIGVNAGSLEKDLQEKYGEFTPQALLESAMRHVDHLDRLNFDQFKVS
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                        LAADPVEEIKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMD
                                                                       VKASDVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLLSEGIGDTLRVS
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                                                                                                                                                                                                                                                                                                                                                            68.7%; Score 1282; DB 66.1%; Pred. No. 3e-81; tive 65; Mismatches
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aphids Buchnera

sp. AI 361

302 300 242 240 182 180

2

Gaps

60 59

360 359

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probable acetyltransferase aarC (imported) - Yersinia pestis (strain CO92) (;Species: Yersinia pestis
C;Species: Yersinia pestis
C;Date: 02-Nov-2001 #sequence_revision 02-Nov-2001 #text_change 09-Nov-2001
C;Accession: AG0350
R;Parkhill, J:; Wren, B.W.; Thomson, N.R.; Titball, R.W.; Holden, M.T.G.; Prentice, deno-Tarraga, A.M.; Chillingworth, T:; Cronin, A.; Davies, R.M.; Davis, P.; Dougan, 11, M.; Rutherford, K.; Simmonds, M.; Skelton, J.; Stevens, K.; Whitehead, S.; Barre Nature 413, 523-527, 2001
A;Title: Genome sequence of Yersinia pestis, the causative agent of plague.
A;Reference number: AB0001; MUID:21470413; PMID:11586360
A;Accession: AG0350
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A;Residues: 1-375 <KUR>
A;Cross-references: GB:AL590842; PIDN:CAC92130.1;
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Best Local S
Matches 323
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al Similarity 86.8%;
323; Conservative 19
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                                                                          KASDVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLLSEGIGDTLRVSL
                                                                                                                                                                                                                                       V$V$TMDAAEAFKLIKQQVNV$LVADIHFDYRIALKVAEYGVDCLRIN$GNIGNEERIRM
                                                                                                                                                                                                                                                                                                                             MHNQAPIQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVR
         AADPVEEVKVGFDILKSLRIRARGINFIACPTCSRQEFDVIGTVNALEQRLEDLITPMDV
                         AADPVEEIKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDV
                                                                                                                                                 VVACARDYNIPIRIGINGGSLEKDIQEKYGEPTPEALLESAMRHVDILDRLNFDQFKVSV
                                                                                                                                                                       VVDCARDKNI PIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSV
                                                                                                                                                                                                                       VSIPTMDAAEAFKLIKQQSTVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGNESRIRE
                                                                                                                                                                                                                                                                                          MHNGSPIIRRKGTRIYVGKVPIGDGAPIAVQSMTNTKTTDVDATVAQIKALERVGVDIVR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGVRKDRLDNNDMIDQLEARIRAKASQLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AADPVEEIKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSV
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                                                                                                                                                                                                                                                                                                                                                             19;
                                                                                                                                                                                                                                                                                                                                                             Score 1622.5; DB 2;
Pred. No. 9.1e-105;
9; Mismatches 29;
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bugan, G.;
Barrell,
RESULT 7

H64063

GCPE protein - Haemophilus influenzae (strain Rd KW20)

C;Species: Haemophilus influenzae

C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 28-Jul-2000

C;Accession: H64063

R;Fleischmann, R.D.; Adams, M.D.; White, O.; Clayton, R.A.; Kirkness, E.F.;
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A;Molecule type: DNA
A;Molecule type: DNA
A;Molecule type: DNA
A;Residues: 1-376 <HEI>
A;Residues: 1-376 <HEI>
A;Cross-references: GB:AE004161; GB:AE003852; NID:g9655200; PIDN:AAF93924.1; GSPDB:GN001;
A;Experimental source: serogroup O1; strain N16961; biotype El Tor
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Title: DNA Sequence of both chromosomes of the cholera pathogen A;Reference number: A82035; MUID:20406833; PMID:10952301 A;Accession: F82283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R;Heidelberg, J.F.; Eisen, J.A.; Nelson, W.C.; Clayton, R.A.; chardson, D.; Ermolaeva, M.D.; Vamathevan, J.; Bass, S.; Qin, l, R.R.; Mekalanos, J.J.; Venter, J.C.; Fraser, C.M. Nature 406, 477-483, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gcpE protein VC0759 [imported] - Vibrio cholerae (strain N16961 serogroup
C;Species: Vibrio cholerae
C;Date: 18 Aug-2000 #sequence_revision 20-Aug-2000 #text_change 02-Feb-200
C;Accession: F82283
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C; Superfamily: gc
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318; Conservative
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                                                                                                                                                                DEKNRIDIKHVEQ
                                                                                                                                                                                                 DEARRIDVOQVEK 372
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85.3%; Pred. No. 1.1e-104;
ative 33; Mismatches 21;
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H.; Dragoi, I.; Sellers,
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Gaps

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Kerlavage,

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242 240 120

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122

cholerae

, R.J.,

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hypothetical protein gcpE [imported] - Escherichia C;Species: Escherichia coli C;Date: 16-Feb-2001 #sequence_revision 16-Feb-2001 C;Accession: E85895 R;Perna, N.T.; Plunkett III, G.; Burland, V.; Mau, iller, L.; Grotbeck, E.J.; Davis, N.W.; Lim, A.; Di
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Title: Complete genome sequence of enterohemorrhagic Escherichia coli 0157:H7
A;Reference number: A99629; MUID:21156231; PMID:11258796
A;Accession: A91051
A;Status: preliminary
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-372 <HAY>
A;Cross-references: GB:BA000007; PIDN:BAB36800.1; PID:913362847; GSPDB:GN00154
A;Cxperimental source: strain 0157:H7, substrain RIMD 0509952
C;Gene: EC83377
C;Superfamily: gcpE protein
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C;Date: 18-Jul-2001 #sequence_revisi
C;Accession: A91051
R;Hayashi, T; Makino, K.; Ohnishi,
gasawara, N.; Yasunaga, T.; Kuhara,
DNA Res. 8, 11-22, 2001
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E85895
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Best Local S
Matches 372
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;Species: Escherichia coli
;Date: 18-Jul-2001 #sequence_revision 18-Jul-2001 #text_change 03-Aug-2001
;Accession: A91051
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                                                                                                                                                                                                                                                                                                                                            KASDVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 1866; DB 2; 100.0%; Pred. No. 1.3e-121;
                                                                                                                                                          372
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 Burland, V.; Mau, B.; Glasner, N.W.; Lim, A.; Dimalanta, E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ა :
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Shiba, T.;
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                                                                             coli
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Shinagawa,
 J.D.; Rose, Potamousis,
                                               14-Sep-2001
                                                                            O157:H7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>,</u>
                                                                             substrain
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A;Cross-references: C;Genetics:
A;Gene: STY2768
C;Superfamily: gcpE p
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A;Title: Genome sequence of enterohemorrhagic Escherichia coli Ol A;Title: Genome sequence of enterohemorrhagic Escherichia coli Ol A;Reference number: A85480; MUID:21074935; PMID:11206551
A;Accession: B85895
A;Status: preliminary
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-372 <STO>
A;Cross-references: GB:AE005174; NID:g12516909; PIDN:AAG57625.1;
A;Cross-references: GB:AE005174; NID:g12516909; PIDN:AAG57625.1;
C;Genetics: A;Genetics:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GcpE protein (protein E) [imported] - Salmonella enterica subsp. enterica C;Species: Salmonella enterica subsp. enterica serovar Typhi A;Note: this species has also been called Salmonella typhi C;Date: 09-Nov-2001 #sequence_revision 09-Nov-2001 #text_change 18-Nov-200 C;Accession: AB0822 R;Parkhill, J.; Dougan, G.; James, K.D.; Thomson, N.R.; Pickard, D.; Wain, th, T.; Connerton, P.; Cronn, A.; Davis, P.; Davies, R.M.; Dowd, L.; Whit
                                                                                                                                                                                                                                 A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-372 <PAR>
                                                                                                                                                                                                                                                                                                                                                    , S.; Moule, S.; O'Gaora, P.
Nature 413, 848-852, 2001
A;Authors: Parry, C.; Quail, M.; Rutherford, K.; Simmonds, M.;
A;Title: Complete genome sequence of a multiple drug resistant
A;Reference number: AB0502; MUID:21534947; PMID:11677608
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Score 1831; D
Pred. No. 3.5e
4; Mismatches
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Pred. No. 1.3e-121;
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Salmonella e
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

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## ALIGNMENTS

밁 á A;Cross-references: GB:AE000338; GB:U00096; NID:g1788862; A;Experimental source: strain K-12, substrain MG1655 C;Genetics: A;Gene: gcpE C;Superfamily: gcpE protein A;Cross-references: EMBL:X64451; NID:g41540; PID:g41542
A;Experimental source: strain K-12
R;Blattner, F.R.; Plunkett III, G.; Bloch, C.A.; Perna, N.T.;
A.; Rose, D.J.; Mau, B.; Shao, Y.
Science 277, 1453-1462, 1997
A;Title: The complete genome sequence of Escherichia coli K-12
A;Reference number: A64720; MUID:97426617; PMID:9278503
A;Accession: B65028 밁 Ş 멍 Ś Вb δ R;Baker, J.; Franklin, D.B.; Parker, J. FEMS Microbiol. Lett. 94, 175-180, 1992 A;Title: Sequence and characterization of the control of the gcpE protein - Escherichia coli (strain K-12)
C;Species: Escherichia coli
C;Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change
C;Accession: \$23058; B65028 A;Status: preliminary; nucleic acid sequence not shown; translation not shown A;Molecule type: DNA A; Molecule type: DNA A; Residues: 1-372 <BAK> A; Reference number: S23057 A; Accession: S23058 A;Residues: 1-372 <BLAT> Query Match Best Local S Matches 372 Local Similarity les 372; Conserv 241 181 181 121 121 61 61 VSVPTMDAAEAFKLIKQQVNVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGNEERIRM 120 AADPVEEIKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDV KASDVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSL VVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSV 180 MHNQAPIQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVR MHNQAPIQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVR KASDVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSL VVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSV 100.0%; Score 1866; DB 1; ilarity 100.0%; Pred. No. 1.3e-121; Conservative 0; Mismatches 0; of the gcpE gene Length 372; Indels of. K-12. PIDN:AAC75568.1; PID:g1788863; Escherichia coli Burland, V.; Riley, M.; 01-Mar-2002 0; Gaps 240 180 300 240 60 8

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RESULT 15
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                           Claim
                                                                                 New nucleic acid, useful therapeutically and to screen antimicrobials and herbicides, encode proteins involved biosynthesis by the deoxy-D-xylulose-phosphate route
                                                                                                                                                                                                     WPI; 2000-283543/24.
N-PSDB; AAX82996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             deoxy-D-xylulose-phosphate; 1-deoxy-D-xylulose-5-phosphate synthase; gcpE; antimycotic; antibiotic; antiviral; antiparasitic; antimicrobial; bactericide; fungicide; herbicide; treatment; disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
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                                                                                                                                                                                                                                                                                             Jomaa
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21-MAY-1999;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Plasmodium falciparum.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAW90883 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                      (JOMA/) JOMAA
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                           3; Page 41-44;
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99DE-1023567.
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                           44pp; German
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d in isoprenoid
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Best Local Sim:
Matches 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This invention describes novel polypeptides and their analogs which are involved in isoprenoid biosynthesis by the deoxy-D-xylulose-phosphate route. The proteins described include 1-deoxy-D-xylulose-5-phosphate reductoisomerase, 1-deoxy-D-xylulose-5-phosphate synthase and the gcpE protein. The products of the invention have antimycotic, antibiotic, antiparasitic, antimicrobial, bactericide, fungicide and herbicide activity. The encoding nucleic acid sequences of the invention are used for prevention or treatment of diseases in humans and animals and also to screen compounds enzyme inhibitory activity (potential antimicrobials, antiparasitic agents, antivirals, fungicides, bactericides and herbicides, for use in human or veterinary medicine or agriculture). This sequence represents the Plasmodium falciparum gcpE protein described in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
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354
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                           214 RSGAVKSAIGLGLLLSEGIGDTLRVSLAADPVEBIKVGFDILKSLRIR
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DNGRIKSYLGIGSLLYDGIGDTIRISLTEDPWEELTPCKKLVENLKKR
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                                                                                                                                                                                                                                                                                    AAEAF-----KLIKQQVNVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGN-----
                                                                                                                                                                                                                                                                                                                             ### REPTREVVIGNVKIGGNNKIAIQTMASCDTRNVEECVYQIRKCKDLGADIVRLTVQGVQ 176
                                                                             ESAFEFSDLCIENNFYNLVFSMKASNAYVMIQSYRLLVSKQYERNMMFPIHLGVTEAGFG
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                                                                                                                The invention relates to gcpE nucleic acid molecule, an essential gene CC of methyl-D-erythricol phosphate (MEP) pathway) that encodes rice, Arabidopsis thaliana or Escherichia coli GCPE protein. gcpE is useful CC for producing a transgenic plant such as Brassica campestris, B. napus, Cc canola, castor bean, coconut, cotton, crambe, linseed, maize, mustard, CC oil palm, peanut, rapeseed, rice, safilower, sesame, soybean, sunflower, CC or wheat with an increased isoprenoid (tocopherol) compound level. The CC expression of GCPE protein in organisms increases the level of CC tocopherol substrate such as isopentyl diphosphate and dimethylallyl CC diphosphate biosynthesis. Transgenic organisms overexpressing GCPE protein can nutritionally enhance food and feed sources. Overexpression CC of GCPE protein in transgenic plant may provide tolerance to stresses Cc e.g., oxidative stress tolerance such as to oxygen or ozone, UV CC tolerance, etc. gcpE may be used to obtain nucleic acid molecules from CC used as or primers. The recombinant vectors are used in plant can protein such as single nucleotide polymorphisms (SNPs). CC detecting polymorphisms such as single nucleotide polymorphisms (SNPs). CC gcpE is also used to determine the level or pattern of expression of the protein. The present segments is arabidoms is thaliana GCDE protein.
Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 1; Page 140-142; 155pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2002-227151/28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  phosphate pathway, encoding
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nucleic acid which is an essential gene of the methyl-D-erythritol phate pathway, encoding a fully defined GCPE protein which is ulfor increasing levels of tocopherol substrates in plants -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MONSANTO TECHNOLOGY LLC
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                                                                  is located
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                                                               The present sequence is located on chromosome V.
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                                                                                                  thaliana
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Query Match

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This invention describes a novel method for incorporating gcp8 and yfg8 genes into viruses and cells for increasing isoprenoid content and identifying e.g. antimicrobial agents, comprises using DNA sequences (I) from the gcp8 or yfg8 genes of bacteria or parasites or DNA sequences with the same biological activity as those encoded by the genes. The invention also describes (I) plant cells containing (I) or (II), (2) transformed plant cells, and transgenic plants regenerated from them, that contain (I) or (II), (3) determining the enzymatic activity of a gcp8 protein; or (4) screening compounds (A) that have antimycotic, antiparasitic, fungicidal or herbicidal activity in plants. (I) and (II)
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Incorporating gcpE and yfgB genes into viruses and cells, for increasing isoprenoid content and identifying e.g. antimicrobial agents, comprises using DNA sequences from bacteria or parasites
                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Page 21-23; 36pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2001-025196/03.
N-PSDB; AAC82654.
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21-MAY-1999;
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antimycotic; antiparasitic; antiviral;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----NIPIRIGVNAGSLEKDLQEKYGEPTPQALLESA
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Disclosure; Page 943-944; 1755pp; English.
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17-DEC-1997;
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                                                                                                                                                                                                                          378 VPKAMRSSPIVSEIEKHLLVFNKEDAPILNPMNEEEWLSEETLSAPFVYFEVTDIHTARR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80 VHACEHIKDRLIQQNISIPLVADİHFFPQAAIHVVDC-VDKVRİNPGNYVDKRNMFTGKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9 RRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVPTMDA
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                    GEALVSTLGVTGGNKKSGLYE 331
                                                                                                  GFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDVSIIGCVVNGP
                                                                                                                                          FFSLRQHSTQPVCLSFSLDPHLSKNEAIIDLSARLGALLLDGLGSCVLLDFVDIKLSRTL
                                                                                                                                                                                                                                                                                                       SKQLGTRNTLNTPPWDNVYGLLINLTDVQLLTAEPIELLQCLGIDTTTGKIDPTTPEGVV
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                                                          GFLILQSANIRSVTVEYVSCPGCGRTLFDLLAVSQRIRERTKHLPGGLKIAVMGCIVNGP
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Pred. No. 1.7e-40;
6; Mismatches 109
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21-NOV-1997;
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    GAVKSAIGLGLLLSEGIGDTLRVSLAADPVEEIKVGFDILKSLRI 260
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                                                                                                                                                                                                                                                                                                                                                                                                                                                621
                                                                                                                                                                                                                                                                                                                                                                  Conservative
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97FR-0014673
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immunogenic compositions as vaccines. Vectors containing C. pneumoniae nucleotides sequences can also be used as immunogenic compositions, especially where the vector directs the expression of a neutralising epitope of C. pneumoniae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    disease, sarcoidosis, sinusitis, purulent otitis media, erythema nodosum or pharyngitis. The polypeptides encoded by the open reading frames of the C. pneumoniae genome (see AAY34584-Y35879) can be used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Respiratory disease; pneumonia; bronchitis; heart disease; sinusitis; purulent otitis media; erythema nodosum; pharync vaccine; neutralising epitope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C. pneumoniae causes respiratory disease such as pneumonia and
bronchitis and is thought to be a contributing factor in heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY34584-Y35879 represent the proteins encoded by all the open reading frames in the complete genome (see AAX91990) of Chlamydia pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Page 885-886; Disclosure; 1912pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genome sequence of Chlamydia pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                      20 RRKTHTVRIGNLYIGSDHSIKTQSMTTTLTTDIDSTVEQIYALAEHNCDIVRVTVQGIKE
                                                                                                                                                                                                                                                                                                                                                           AEAFKLIKQQ-----VNVPLVADIHFDYRIALKVAEYGVDCLRINPGN-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RRKSTRIYVGNVÞIGDGAÞIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVÞTMDA
AIEYIAVCEKLNYRDVVFSMKSSNPKIMVTAYRQLAKDLDARGWLYPLHLGVTEAGMGVD
                                                                       AMRHVDHLDRLNFDQFKVSVKASDVFLAVESYRLLAKQID-----QPLHLGITEAGGARS
                                                                                                                                                 IYTEASYAQSLLRLEEKFAPLVEKCKRLGKAMRIGVNHGSLSERIMQKYGD-TIEGMVAS
                                                                                                                                                                                                                                                                                        AQACEKIKERLIALGLNIPLVADIHFFPQAAMLVADF-ADKVRINPGNYIDKRNMFKGTK
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                                                                                                                                                                                                                 ----IGNEERIRMVVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25.2%; Score 470.5; DB 2 38.9%; Pred. No. 1.7e-38;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                84;
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RESULT 10
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ID ABP78
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AC ABP78
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DT 07-M
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DT 07-M
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OS Nei:
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OS Nei:
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Best Local Similarity
Matches 156; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       encoded by ABZ71062 to ABZ71130 (II), which are isolated from Mycobacterium tuberculosis. (I) are encoded by genes (II) whose expression is induced or up-regulated during culture of a mycobacterium under conditions defined by a dissolved oxygen tension of at least 10% air saturation measured at 37 plus degrees Celsius, when compared with a dissolved oxygen tension of at least 40% air saturation measured at 37 plus degrees Celsius. (I) and (II) have antibacterial, tuberculostatic and immunostimulant activities, and can be used in vaccines and gene therapy. (I) and (II) can be used for the manufacture of a medicament for treating or preventing a mycobacterial infection. They can also be used for the manufacture of a diagnostic reagent for identifying a mycobacterial infection.
                                                                                                                                                  10-OCT-2002
                                                                                                                                                                                                                        Neisseria
                                                                                                                                                                                                                                                                                                                                    07-MAR-2003
                                                                        12-FEB-2001; 2001GB-0003424
                                                                                                            12-FEB-2002;
                                                                                                                                                                                    WO200279243-A2
                                                                                                                                                                                                                                                          Antibacterial; infection;
                                                                                                                                                                                                                                                                                                                                                                        ABP78786
                                                                                                                                                                                                                                                                                                                                                                                                        ABP78786 standard;
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                                     (CHIR-) CHIRON SPA
                                                                                                                                                                                                                                                                                              gonorrhoeae amino acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     368
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      198 MVAAYELLAARCDYPLHLGVTEAGPAFQGTIKSAVAFGALLSRGIGDTIRVSLSAPPVEE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NGPGEALVSTLGVTGGNKKSGLYEDGVRKDRLDNNDMIDQLEARIRAKASQLDEARRIDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMGEQ 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NGPGEAREADLGVASGNGKGQIFVRGEVIKTVPEAQIVETL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VKVGNQVLESLNLRPRSLEIVSCPSCGRAQVDVYTLANEVTAGLDGLDVPLRVAVMGCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSLAADPVEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGIPIRIGVNAGSLDKRFMEKYGKATPEALVESALWEASLFEEHGFGDIKISVKHNDPVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSVKASDVFL
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                                                                                                                                                                                                                        gonorrhoeae
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 Pizza M,
                                                                                                            2002WO-IB02069.
                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                        Protein;
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42.7%; Pred. No. 2e-67;
tive 64; Mismatches 134;
Masignani V,
                                                                                                                                                                                                                                                            vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                          gene therapy
                                                                                                                                                                                                                                                                                              SEQ ID 4102.
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AC AAY37
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XX Vacci
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Best Local S
Matches 135
                                                                     Chlamydia trachomatis
                                                                                                                                                                                                                                07-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present invention relates to proteins from Neisseria gonorrhoeae. Also disclosed are the nucleic acid molecules encoding the proteins and antibodies that specifically bind to the proteins. The composition comprising the protein, nucleic acid or antibody is useful for the manufacture of a medicament for treating or preventing N. gonorrhoeae infection, this may be in the form of a vaccine or gene therapy. Sequences given in records ABP/6736-ABP81046 represent nucleic acid molecules of the invention.
                                                                                                        bartholinitis;
                                                                                                                                          paratrachoma;
                                                                                                                                                         Vaccine; eye disease; conventional trachoma; nonendemic trachoma;
                                                                                                                                                                                             Amino acid
                                                                                                                                                                                                                                                                                                     AAY37164 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New protein from Neisseria gonorrheae, useful for the manufacture medicament for treating or preventing N. gonorrheae infection
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N-PSDB; ABZ39756.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EAASKVAEIRRRLDDMGYATPLIGDFHFNGERLLAEFPECGKALSKYRINPGNVGKGVKG 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DAAEAFKLIKQQVN-----VPLVADIHFD-YRIALKVAEYG--VDCLRINPGNIG----N 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVPTM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QEFDVIGTV----NALEQR-----LEDIITPMDVSIIGCVVNGPGEALVSTLGV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SAIGLGLLLSEGIGDTLRVSLAADP----VEEIKVGFDILKSLRIRSRGINFIACPTCSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MRHVDHLDRLNFDQFKV--SVKASDVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVK 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEKFAFMIRTAAENDKAVRIGVNWGSLDQSLAKRMMDANLVSSAPKPPEEVMKEALIVSA
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                                                                                                                                                                                             sequence of
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                                                                                                      inclusion conjunctivitis; genital disease; perihepatitis;
uretritis; epidymitis; cervicitis; salpingitis;
; pneumopathy; venereal lymphogranulomatosis.
                                                                                                                                                                                                                                (first
                                                                                                                                                                                                                                entry)
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                                                                                                                                                                                             a Chlamydia trachomatis
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                                                  This invention relates to a method for identifying a nucleotide or polypeptide sequence that may be a drug target, or essential for growth or viability of an organism. Polypucleotide sequences AAH51947 - AAH52092 represent DNA encoding proteins AAG81096 - AAG81241, Mycobacterium tuberculosis proteins which are potential drug targets. The DNA and protein sequences are used to illustrate the method of the invention. The method involves providing an unknown nucleotide or polypeptide sequences, and comparing it to a number of sequences along with at least one algorithm capable of analysing a functional relationship between nucleotide and polypeptide sequences. The method is useful for characterising the function of nucleic acids and polypeptides that may be useful as a target for a drug or essential for the growth or viability of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Identifying nucleotide or polypeptide sequence for use as drug target, involves providing algorithm that analyzes a functional relationship between nucleotide or polypeptide sequences, and comparing the
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; 99US-0165124.
; 2000US-0179531.
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Best Local :
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                                           New mycobacterial peptide, its fragment, variant or as vaccine for treating or preventing mycobacterial diagnostic reagents for identifying such infections
                       Claim 2;
                                                                                         WPI; 2003-201403/19.
N-PSDB; ABZ71126.
                                                                                                                            James
                                                                                                                                                                         22-JUN-2001; 2001GB-0015365
07-SEP-2001; 2001GB-0021780
                                                                                                                                                                                                          21-JUN-2002; 2002WO-GB02845
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                                                                                                                                                                                                                                                                             Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                   Mycobacterium tuberculosis; immunostimulant; vaccine; go
                                                                                                                                                                                                                                                                                                                                   Mycobacterium tuberculosis protein SEQ ID NO:129
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                                                                                                                                                                                                                                                                                                                                                                                   ABP57500;
                                                                                                                                                                                                                                                                                                                                                                                                         ABP57500 standard;
                                                                                                                                                  (MICR-) MICROBIOLOGICAL RES AUTHORITY.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  78 ADALAEIARHSQIPVVADIHFQPRYIFAAIDAGCAAVRVNPGNIKEFDGRVGEVAKAAGA 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9 RRKSTRIYVGNVPIGDGAPIAVOSMTNTRTTDVEATVNQIKALERVGADIVRVSVPTMDA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSLAADPVEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSVKASDVFL 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AEAFKLIKQQVNVPLVADIHFDYRIALKVABYGVDCLRINPGNIGN-EERIRMVVDCARD 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RRATRQLMVGNVGVGSDHPVSVQSMCTTKTHDVNSTLQQIAELTAAGCDIVRVACPRQED 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VKVGNQVLESLNLRPRSLEIVSCPSCGRAQVDVYTLANEVTAGLDGLDVPLRVAVMGCVV
                      Page 235-236; 246pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMGEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QQVEK
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NGPGEALVSTLGVTGGNKKSGLYEDGVRKDRLDNNDMIDQLEARIRAKASQLDEARRIDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDVSIIGCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MVAAYELLAARCDYPLHLGVTEAGPAFQGTIKSAVAFGALLSRGIGDTIRVSLSAPPVEE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       387
                                                                                                                           Bacon J,
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                                                                                                                                                                                                                                                                                                                                                          (first entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                   vaccine; gene
                                                                                                                                                                                                                                                                                                                                                                                                        Protein;
                                                                                                                            Marsh P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     40.3%; Score 751.5; DB 22; 42.7%; Pred. No. 2e-67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64;
                                                                                                                                                                                                                                                                                                                                                                                                         387
                                                                                                                                                                                                                                                                                                               infection;
                       English.
                                                                                                                                                                                                                                                                                                   therapy;
                                                                                                                                                                                                                                                                                                                                                                                                          A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                   antibacterial;
; mycobacterial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                        derivative, infections,
                                                                                                                                                                                                                                                                                                    tuberculostatic;
infection.
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                                                          useful
and as
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ABP57436 to ABP57504 represent mycobacterial

amino acid sequences

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                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 159
                                                                                                                                                                                                                                                                                                                                                                                                                pustulosis, hypertosis and osteomyelitis), uveitis and endophthalmitis.

P. acnes is also involved in infections of bone, joints and the central nervous system, however it is particularly involved in the inflammatory lesions associated with acne vulgaris. A method for detecting the presence or absence of P. acnes in a patient comprises contacting a sample with a binding agent that binds to the proteins of the invention and determining the amount of bound protein in the sample. The polypeptides may be used as antigens in the production of antibodies specific for P. acnes proteins. These antibodies can be used to downregulate expression and activity of P. acnes polypeptides and therefore treat P. acnes infections. The antibodies may also be used as diagnostic agents for determining P. acnes presence, for example, by enzyme linked immunosorbent assay (ELISA).

Note: The sequence data for this patent did not form part of the printed as for which intention, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequences AAU39105-AAU68017 represent Propionibacterium acnes immunogenic polypeptides. The proteins and their associated DNA sequences are used in the treatment, prevention and diagnosis of medical conditions caused by P. acnes. The disorders include SAPHO syndrome (synovitis, acne,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-APR-2000; 2000US-199047P.
02-JUN-2000; 2000US-208841P.
07-JUL-2000; 2000US-216747P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 1; SEQ ID No 17407; 1069pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                vaccinating against and
treating acne vulgaris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Propionibacterium acnes polypeptides and nucleic acids useful for vaccinating against and diagnosing infections, especially useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Skeiky YAW, Persing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20-APR-2001; 2001WO-US12865
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             L'maisonneuve J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Propionibacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              dermatological;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           uveitis; endophthalmitis; bone; joint; central nervous system; ELISA; inflammatory lesion; acne vulgaris; enzyme linked immunosorbent assay;
                                                                                                                                                                                                                                                                                                                                                                                                  ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001-616774/71.
                                                                                                                                                                                                                                                                                             159;
                                                                                                                                                                               69
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                                                                                                                                                                                                                                      9.RRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVPTMDA
                                                                                                                                                                                                                                                                                                            Similarity
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                            AVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSLAADPVEE
MIRAYEQLAAKCDYPLHLGVTEAGPAFQGTIKSAVAFGHLLAEGIGDTIRVSLSADPVEE
                                                                                                      KNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSVKASDVFL
                                                                                                                                           AEVLPIIAKRSQIPVIADIHFQPKYVFQAIEAGCGAVRVNPGNIRKFDDQIESICQAATE
                                                                                                                                                                               AEAFKLIKQQVNVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGN-EERIRMVVDCARD
                                                                                                                                                                                                                   REKTHQIKVGDVLVGGDAPISVQSMTTTKTHDVGATLQQIAALTAAGCDIVRVACPTDKD
                                                                                                                                                                                                                                                                                                                                                                    415
                                                                                                                                                                                                                                                                                             Conservative
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                                                                                                                                                                                                                                                                                                            42.18;
                                                                  AGSLDKRLLDKYGAPTAEAMVESALWEASLFEQYGFRDFKISVKHHDPVV
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, Jen S, Carter D;
                                                                                                                                                                                                                                                                                         68;
                                                                                                                                                                                                                                                                                                            Score 785.5;
Pred. No. 7.
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7.9e-71;
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                                                                                                                                                                                                                                                                                                                            Length 415;
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RRKTRQLMVGKVGVGSDHPISVQSMTTTKTHDINGTLQQIAQLTATGCDIVRVACPKTVD

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                                                          Query Match
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Matches 159
                                                                                                                                                                                                                                                mutant of coryneform bacterium, measuring expression amount and analysing the expression profile or expression pattern of a gene derived from Coryneform bacterium, and identifying a homologue of a gene derived from coryneform bacterium. Coryneform bacteria are useful for producing amino acids, nucleic acids, vitamins, saccharides and organic acids, particularly L-lysine. The present sequence is a protein described in the exemplification of the invention.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nakagawa
Tateishi
                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Novel polynucleotides derived from Coryneform bacteria, for identifying mutation point of a gene, measuring expression of a gene, analysing expression profile or pattern of a gene and identifying homologous gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-DEC-1999; 99JP-0377484
07-APR-2000; 2000JP-0159162
03-AUG-2000; 2000JP-0280988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present invention provides a number of nucleotide and protein sequences from the Coryneform bacterium Corynebacterium glutamicum are useful for identifying the mutation point of a gene derived from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Corynebacterium glutamicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 17; SEQ ID NO: 5705; 246pp + Sequence Listing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18-DEC-2000; 2000EP-0127688
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26-SEP-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (KYOW ) KYOWA HAKKO KOGYO KK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    glutamicum protein fragment
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                                                                                       Similarity
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RRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVRVSVPTMDA 68
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                                                          Score 761; DB 22;
Pred. No. 2.1e-68;
4; Mismatches 124
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Matches 167
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     given in ABP65258 to ABP66354 ligated in frame to a polynucleotide encoding a heterologous polypeptide. (I) has antidiarrheic and antibacterial activities, and can be used as an inhibitor of Salmonella. (I) (which is a probe) is useful for the detection and/or identification of Bifidobacterium longum in a biological sample. A carrier containing the lactic acid bacterium Bifidobacterium longum NCC2705 (CNCM I-2618)
                                                                                                                              GHPO protein; Helicobacter peptic ulcer disease.
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                                                                                                                                                                                                                                                                                                      31-MAR-1999
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46.3%; Pred. No. 8.4e-74;
tive 70; Mismatches 111
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WO9843478-A1

SAPHO syndrome; synovitis; acne; pustulosis; hypertosis; osteomyelitis;

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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
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                         Propionibacterium acnes immunogenic protein #17108
                                                      27-FEB-2002
                                                                                 AAU56212
                                                                                                          AAU56212 standard;
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01-APR-1997;
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                                                                                                                                                                                                                                                  KVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDVSIIGCVVN
                                                                                                                                                                                                                                                                                                                  VESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSLAADPVEEI
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                                                                                                                                                                                                                                    KVARAILRHSGRLKEGINWISCPTCGRIEANLVDMAIKVEKRLSHIKTPLDISVMGCVVN
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45.8%; Pred
45.73;
                                                                                                           Protein;
                                                     entry)
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Pred. No. 8.
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8.5e-72;
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                                                                                                                                                                     The present invention relates to the genome sequence of Listeria monocytogenes EGD-e (see ABA03041). The genome sequence and fragments of it are useful for selecting probes and primers for detecting genes in L. monocytogenes and related organisms, and for studying genetic polymorphisms and other genomes. The present sequence is a protein encoded by the genome sequence of the present invention. Proteins expressed from the genome sequence are useful for raising specific antibodies, identification of L. monocytogenes and related organisms, and for biosynthesis and biodegradation, especially biosynthesis of vitamin B12. The genome sequence and proteins encoded by it are also useful for selecting compounds that regulate gene expression and cell replication and modulate L. monocytogenes-related diseases. In addition, the genome sequence and proteins encoded by it are useful in pharmaceutical and vaccines compositions for the treatment or prevention of infections by L.
                                                  monocytogenes and related organisms.

Note: The sequence data for this patent did not specification, but was obtained in electronic fo at ftp.wipo.int/pub/published_pct_sequences.
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Perez-io E, De Pablos
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim
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Query Match

46.5%;

Score

868;

DB 23;

Length 368;

The present invention describes a polynucleotide (I) comprising a sequence of a Bifidobacterium genome selected from the nucleotide sequences given in ABQ81842 and ABQ81843, or a sequence exhibiting at least 90% identity or which hybridises with the sequences given in ABQ81842 and ABQ81843. Also described is a polynucleotide (II) encoding a fusion protein, comprising a sequence selected from 1097 sequences

Sequence

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                                                                                                                                                                                                                                                          Novel polynucleotide comprising Bifidobacterium genome sequence useful as a probe or primer for detecting and/or identifying Bifidobacterium
                                                                                                                                                                                   Claim 3;
                                                                                                                                                                                                                                                                                                                                              WPI; 2002-668397/72.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bifidobacterium longum.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bifidobacterium longum NCC2705; antidiarrheic; antibacterial; in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bifidobacterium longum NCC2705
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                                                                                                                                                                                   SEQ ID 66; 80pp; English.
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inhibitor of Salmonella; detection;
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Best Local Sim
Matches 372;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This invention describes a novel method for incorporating gcpE and yfgB cgenes into viruses and cells for increasing isoprenoid content and identifying e.g. antimicrobial agents, comprises using DNA sequences (I) from the gcpE or yfgB genes of bacteria or parasites or DNA sequences (III) which hybridize to the specified genes or encode a plastid protein with the same biological activity as those encoded by the genes. The invention also describes (I) plant cells containing (I) or (II); (2) transformed plant cells, and transgenic plants regenerated from them, that contain (I) or (II); (3) determining the enzymatic activity of a gcpE protein; or (4) screening compounds (A) that have antimycotic, antiparasitic, fungicidal activity in humans or animals or antiviral, antiparasitic, fungicidal activity in plants. (I) and (II) are used: (i) to increase the isoprenoid levels in viruses and cells; (iii) for determining the enzymatic, activity of gcpE proteins;
transgenic food; feed oxidative s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and (iii) to identify compounds that inhibit activity of gcpE, i.e. potential antibacterial, antimycotic, antiparasitic or antiviral agents for use in humans or animals, or antiviral, antiparasitic, fungicidal
                                                     gcpE gene;
                                                                                                                               31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
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                                                                                          Escherichia
                                                                                                                                                                                                    AAE19653 standard; Protein; 372
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                                                                                                                                                                                                                                                                                                                                                                      SIIGCVVNGPGEALVSTLGVTGGNKKSGLYEDGVRKDRLDNNDMIDQLEARIRAKASQLD
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methyl-D-erythritol phosphate; MEP; dimethylallyl diphosphate; plant; isoprenoid compound; tocopherol; isopentyl diphosphate; source; transfection; single nucleotide polymorphism; SNP; stress tolerance; UV tolerance; transformation; GCPE protein;
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                                                                                                                                                                                                                                                                                                                                                                                                                                   CC canola, castor bean, coconut, cotton, crambe, linseed, maize, mustard, cotton, crambe, linseed, maize, mustard, coil palm, peanut, rapeseed, rice, safflower, sesame, soybean, sunflower, cor wheat with an increased isoprenoid (tocopherol) compound level. The cx expression of GCPE protein in organisms increases the level of ct tocopherol substrate such as isopentyl diphosphate and dimethylallyl cdiphosphate biosynthesis. Transgenic organisms overexpression compound level. The crotein can nutritionally enhance food and feed sources. Overexpression compound for grant in transgenic plant may provide tolerance to stresses compound level of GCPE protein in transgenic plant may provide tolerance to stresses compound level. The compound stress tolerance such as to oxygen or ozone, UV compounds the same species, and to obtain nucleic acid molecules from compound the same species, and to obtain nucleic acid molecules gcpE is also compound transfection. GCPE an also act as markers capable of compounds or transfection single nucleotide polymorphisms (SNPS). GCPE is also used to determine the level or pattern of expression of the protein. The present sequence is Escherichia coli GCPE protein.
                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The invention relates to gcpE nucleic acid molecule, an esser of methyl-D-erythritol phosphate (MEP) pathway) that encodes Arabidopsis thaliana or Escherichia coli GCPE protein. gcpE:
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phosphate pathway, encoding a fully defined GCPE protein which is
useful for increasing levels of tocopherol substrates in plants -
                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 1; Page 144-145; 155pp; English.
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                          AADPVBEIKVGFDILKSLRIRSRGINFIACPTCSRQEFDVIGTVNALEQRLEDIITPMDV
                                                                                                                                                      VVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSV
                                                                                                                                                                                                                       V$VPTMDAAEAFKL1KQQVNVPLVAD1HFDYR1ALKVAEYGVDCLR1NPGN1GNEER1RM
                                                                                                                                                                                                                                                                                       MHNQAPIQRRKSTRIYVGNVPIGDGAPIAVQSMTNTRTTDVEATVNQIKALERVGADIVR
                                                                                      KASDVFLAVESYRLLAKQIDQPLHLGITEAGGARSGAVKSAIGLGLLLSEGIGDTLRVSL
                                                                                                                                    VVDCARDKNIPIRIGVNAGSLEKDLQEKYGEPTPQALLESAMRHVDHLDRLNFDQFKVSV
                                                                                                                                                                                                    VSVPTMDAAEAFKLIKQQVNVPLVADIHFDYRIALKVAEYGVDCLRINPGNIGNEERIRM
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OM protein - protein search, using sw model
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24	22	22	22	19	23	23	23	22	BB	
ABP57500	AAG81205	AAG91951	AAU56212	AAW98298	ABP65322	ABB47958	AAE19653	AAB45692	Ŗ	SUMMARIES
Mycobacterium tube	Mycobacterium tube	C glutamicum prote	Propionibacterium	H. pylori GHPO 76	Bifidobacterium lo	Listeria monocytog	Escherichia coli G	E. coli gcpE prote	Description	

Incorporating gcpE and yfgB genes into viruses and cells,

for

Result

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Staphylococcus aur	AAU34139	22	2368		99	45
PMWaV-2 heat shock	AAY91970	21	541	5.3	99	44
ioma i	99	22	502	•	100	43
5	988	21	343	5.4	100	42
Cercospora nicotia	46	19	343	•	100	41
Alpha-isopropylmal	16	22	523	5.4	101	40
ria mor	21	23	338		101	39
ptococci	847	23	546	٠	102	38
eptococcu	632	23	546		102	37
coccus	370	23	542		102.5	36
eria mor	ABB48094	23	606		104	35
2-isoprop	AAY26187	20	545		105	34
Human granulocytic	AAU73205	23	578		105.5	<u>3</u> 3
antigen	ABG93408	23	578		105.5	32
Extended Ehrlichia	AAY78566	21	578		105.5	31
sp. ext	AAW82635	19	578		105.5	30
ĕ	ABB53922	23	284		106.5	29
bacterium	AAU53170	22	256	٠	109	28
thali	AAG45733	21	108		110	27
s thali	AAG08756	21	108		110	26
locytic	AAW89273	20	578		111.5	25
Putative P. abyssi	AAB96357	22	489		113	24
is thali	AAG45732	21	113		119	23
Arabidopsis thalia	AAG08755	21	113		119	22
Novel human diagno	ABG25879	22	776	ω.	242	21
obact	ABU52039	23	144	۲	398	20
ORF	ABP32470	23	169	ω.	428.5	19
n ORFX ORF113	AAB41371	21	169	ω	428.5	18
a sat	AAE19651	23	686	ω	445.5	17
a sativa	AAE19652	23	603	Ŀ	445.5	16
alciparun	AAW90883	21	752	Ü	446	15
alciparum gcp	AAB45693	22	679	4.	460	14
dopsis t	1965	23	740	4.	462	13
acid	3	20	621	ÿ	470.5	12
o acid sequ	Y3716	20	611	26.3	490	11
N. gonorrhoeae ami	ABP78786	24	421	œ	534	10

## ALIGNMENTS

AAB45692 standard; Protein; 372 AA

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RESULT 1
AAB45692
ID AAB4
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N-PSDB; AAC82653.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Isoprenoid; gcpE; yfgB; antimicrobial; transgenic plant; agriculture; antimycotic; antiparasitic; antiviral; fungicidal; herbicidal.
                                                                                                                                                                                                                                          Jomaa H;
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21-MAY-1999;
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